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ABSTRACT

Presented are social, educational, and job-related characteristics of a select group of scientists, engineers and other highly-trained persons in the United States. Eight major fields (computer specialists, engineers, mathematical specialists, life scientists, physical scientists, environmental scientists, psychologists, and social scientists) are used to categorize 17 detailed fields of science or engineering. The report provides highlights of findings, a summary of results, a discussion of the sample and statistical considerations, the questionnaire used, and a section on definitions and explanations. Data for the document were obtained from the 1976 National Survey of Natural and Social Scientists and Engineers sponsored by the National Science Foundation and conducted by the Bureau of the Census. (RE)

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CURRENT POPULATION REPORTS

Special Studies

Series P-23, No. 76
Issued October 1978

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Selected Characteristics of Persons in Fields of Science or Engineering: 1976

U.S. Department of Commerce
BUREAU OF THE CENSUS

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BUREAU OF THE CENSUS

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The principal participants for the National Science Foundation in developing and coordinating the survey were **J. James Brown**, Study Director, Demographic Studies Group, and **Robert R. Trumble**, Head, Scientific and Technical Personnel Studies Section, both members of the Division of Science Resources Studies. Assistance was provided by **Nancy M. Conlon**, Analyst, Manpower Characteristics Studies Group.

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Preface

This report presents the social, educational, and job-related characteristics in 1976 of a select group of the Nation's experienced scientists, engineers, and other highly-trained persons. The statistics are based on the 1976 National Survey of Natural and Social Scientists and Engineers, the third survey in a longitudinal series of biennial surveys that began in 1972. The first survey in the series, the 1972 Professional, Technical, and Scientific Manpower Survey, focused on persons who were identified in the 1970 Census of Population as being in the 1970 experienced civilian labor force and as meeting the Census Bureau criteria for classification in one of 40 groups of scientific, engineering, or related occupations. The scope of the 1974 and 1976 surveys was narrowed to include only those persons from the 1972 survey who met the much stricter criteria of the National Science Foundation for classification to particular fields of science or engineering, based on their 1972 responses. For these reasons, the group profiled in this report is termed "select" or "experienced."

More detailed statistics, based on results from the 1972, 1974, and 1976 surveys, will be issued in future reports of the National Science Foundation or the Bureau of the Census. These reports will present information on such subjects as salary distributions, geographic and occupational mobility, and educational attainment.

After the data from the 1976 survey presented in this report were tabulated, an error was discovered in one of the computer programs that produced the tabulations. The effects of the error were negligible and did not justify the re-tabulation of the data. For more information, see appendix G.

Related Materials

Statistics from a related survey, the 1972 Professional, Technical, and Scientific Manpower Survey, are found in: U.S. Bureau of the Census, **Characteristics of Persons in Engineering and Scientific Occupations: 1972,** Technical Paper No. 33, U.S. Government Printing Office, Washington, D.C. 1974; and U.S. Bureau of the Census, **Current Population Reports,** P-23, No. 45, "Persons in Engineering, Scientific, and Technical Occupations: 1970 and 1972," U.S. Government Printing Office, Washington, D.C. 1973.

The Census Bureau report based on the results of the 1974 National Survey of Scientists and Engineers is: U.S. Bureau of the Census, **Current Population Reports,** Special Studies P-23, No. 53, "Selected Characteristics of Persons in Fields of Science or Engineering: 1974," U.S. Government Printing Office, Washington, D.C. 1975.

For a list of the National Science Foundations reports based on the above-mentioned 1972 and 1974 surveys, see National Science Foundation, **Characteristics of the National Sample of Scientists and Engineers 1974, Part III** (NSF 76-330) Washington, D.C. 20402; and National Science Foundation, **U.S. Scientists and Engineers: 1974** (NSF 76-329) Washington, D.C. 20402. A National Science Foundation report based on the results of the 1976 National Survey of Natural and Social Scientists and Engineers is: **Science Resource Studies Highlights,** "National Sample of Scientists and Engineers: Changes in Employment, 1972-1974 and 1974-1976" (NSF 77-322), Washington, D.C. 20550.

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Symbols

–	Represents zero.
(NA)	Not applicable.
(B)	Based on fewer than 20 sample cases.
(Z)	Less than 0.05 percent.

D

Selected Characteristics of Persons in Fields of Science or Engineering: 1976

INTRODUCTION

The National Sample of Scientists and Engineers sponsored by the National Science Foundation as part of its Manpower Characteristics System,[1] is intended to include a series of biennial surveys designed to provide current data on the educational, employment, and career characteristics of experienced persons in scientific and engineering fields. The series began with the 1972 Professional, Technical, and Scientific Manpower Survey.[2] The second survey in the series was the 1974 National Survey of Natural and Social Scientists and Engineers. This report is based on the third survey in the series, the 1976 National Survey of Natural and Social Scientists and Engineers. Unless otherwise noted, data in this report for the year 1974 are based on the 1974 survey; these 1974 data are published in **Current Population Reports**, Special Studies, Series P-23, No. 53, "Selected Characteristics of Persons in Fields of Science or Engineering: 1974."

The panel for the 1974 and 1976 surveys is a subpopulation of participants in the 1972 survey. From characteristics determined in this 1972 survey, persons were classified into 1 of 17 detailed fields of science or engineering or as not being in a field of science or engineering in 1972. The 17 detailed fields are grouped into 8 major fields, as shown in example 1. Only these persons who were classified into 1 of the 17 fields in 1972 were included in the 1974 and 1976 surveys. Respondents in the 1974 survey were then classified into one of the scientific or engineering fields in 1974 or as not being in a field of science and engineering in 1974. Respondents in the 1976 National Survey of Natural and Social Scientists and Engineers were classified in the same manner for the year 1976.

Fields of science or engineering are categories developed by the National Science Foundation to identify persons who could be classified as scientists or engineers under most definitions. The concept of "field," therefore, is more restrictive than that of "occupation." In general, to be classified into a field, a person needed at least two of the following three characteristics: (1) employment in a specified occupation, (2) attainment of a particular level of education in a specified academic discipline, and (3) self-identification with a specified profession. The occupational classifications in this survey, on the other hand, are based solely on responses to the question "what was your occupation;"[3] in answer to this question, the respondent was directed to enter a code and a description from a list accompanying the questionnaire.

Example 1

- Computer specialists
- Engineers
- Mathematical specialists
  - Mathematicians
  - Statisticians
- Life scientists
  - Agricultural scientists
  - Biologists
  - Medical scientists
- Physical scientists
  - Chemists
  - Physicists and astronomers
  - Other physical scientists
- Environmental scientists
  - Earth scientists
  - Atmospheric scientists
  - Oceanographers
- Psychologists
- Social scientists
  - Economists
  - Sociologists and anthropologists
  - Other social scientists

Table 1 of this report describes the sex and age composition of all categories of respondents and nonrespondents in the 1976 survey, and provides a distribution of their 1974 classification by their 1976 classification. The remaining tables in this report are based exclusively on persons who responded in 1976. Tables 1 to 5 present data for the major and detailed science or engineering fields, whereas the text tables and discussion are restricted to the major fields; in this text, therefore, the word "field" will refer to major field of science or engineering. Persons in the category "not in a field of science or engineering" are referred to as "out-of-scope."

[1] For a description of the Manpower Characteristics System, see Robert W. Cain, "Manpower Characteristics System," **Proceedings of the Social Statistics Section**, American Statistical Association, 1972.

[2] For a description of the 1972 survey, see U.S. Bureau of the Census, **Characteristics of Persons in Engineering and Scientific Occupations: 1972**, Technical Paper No. 33, U.S. Government Printing Office, Washington, D.C. 1974.

[3] In the 1972 survey, the question asked "What kind of work were you doing."

HIGHLIGHTS

Some highlights of this report are summarized under the following subjects:

1974 and 1976 comparisons. 1974-76 comparisons reveal very few significant differences between the characteristics of the science and engineering fields in those 2 years. Residential patterns, labor force participation rates, and employment and unemployment levels, for example, were nearly the same. There was some movement, however, into higher salary brackets for most groups and a rather substantial increase of about $5,200 in the median salary of environmental scientists. As expected, there were greater proportions of retired persons in 1976. Also, the movement of persons between groups (i.e., inter-field mobility) over the 2-year period may have had less influence on the composition of the 1976 groups than had been true during the 1972-74 period.

Field of science or engineering in 1974 and 1976. About one-fourth or less of the persons in each major 1974 S/E field who responded in the 1976 survey were in a different major field in 1976. The proportions who left science or engineering altogether ranged from 4 to 17 percent.

Place of residence. Except for the life scientists, at least three-fourths of the persons in the fields and the out-of-scope resided in metropolitan areas.

Highest degree held. Computer specialists and engineers were less likely to hold doctoral degrees than were persons in the other fields.

Major field of study for highest degree held. About three-fourths or more of the persons in most fields had majored for their highest degree in a corresponding academic discipline. Computer specialists had more varied academic backgrounds.

Supplemental training in 1975. About one-fourth to nearly 60 percent of the persons supplemented their academic backgrounds with some type of non-formal training (for example, on-the-job training) in 1975. Most of the training was provided by employers.

Employment status in February 1976 and February 1975. During each of the reference periods—the second week of February 1976 and February 1975—at least 90 percent of the persons in each field participated in the labor force. The unemployment rate for each field was between 1 and 3 percent. At least 90 percent of the employed persons worked full time; the majority of those working part time indicated that this was their preference.

Industry of employment in February 1976. Employed computer specialists, engineers, and physical scientists were concentrated in manufacturing industries, whereas large proportions of nearly every other field were employed by educational institutions.

Primary work activity in February 1976. About one-fifth or more of the employed scientists and engineers were primarily active in management or administrative duties. From one-fourth to about two-fifths of the employed engineers, and life, physical, and environmental scientists were primarily active in research and development.

Basic annual salary in February 1976. All fields except life scientists ($20,893) had median salaries above $21,000; environmental scientists had the highest median salary of $25,289.

Federal support in February 1976. The U.S. Government funded at least some of the work of at least 35 percent of the employed persons in nearly every field.

Job Mobility. In the 1-year period from February 1975 to February 1976, at least 8 of 10 persons employed at both times were working at the same job; in the 2-year 1974-76 period, this was true for 6 or 7 out of every 10; and in the 4-year 1972-76 period, this was true for 4 to 6 persons out of every 10. Among persons who changed jobs between February 1975 and February 1976, 3 to 7 out of 10 remained in the same occupation.

Professional experience. As expected, professional experience was strongly related to age. On the average, persons in the youngest group (computer specialists) had the least experience (a median of 11.3 years), whereas the older environmental scientists and engineers had the most experience (19.4 and 19.1 years, respectively).

National Interest Topics. Nearly three-fourths of the environmental scientists and approximately two-thirds of life scientists and psychologists reported that they devoted a significant portion of their professional time to 1 of 11 specified topics of critical national interest. In contrast, only about one-third of the computer specialists reported such involvement.

SUMMARY OF RESULTS

Sex, Age, and Field in 1976

Sex. There were relatively few women in most of the science and engineering (S/E) fields. Except for psychologists and social scientists, about 85 percent or more of the persons in each of the fields were men (table 1). Engineers and environmental scientists were the most predominately male groups, with men making up approximately 99 percent and 97 percent, respectively, of these fields. The field with the largest proportion of women was psychologists (28 percent), followed by social scientists (19 percent).

The relative paucity of women in most of these fields may be a result of the perception, widespread until recently, of science and engineering as male pursuits. The persons in these fields, it should be noted, were all in the labor force in 1970; thus, the fields do not reflect the characteristics of persons who have entered science or engineering since 1970.

Although not strictly comparable with the figures in this report, the 1976 annual averages of employed persons in selected occupations based on the Current Population Survey[4] (CPS), show that in 1976 women constituted 19.1 percent of the employed computer specialists, 1.8 percent of the employed engineers, 12.1 percent of the employed life and physical scientists, and 24.4 percent of the employed social scientists.

Age. The universe for this study includes persons who were at least 16 years old and in the experienced civilian labor force in 1970. At the time of the 1976 survey, therefore, they were all part of the mature or experienced work force. Thus, the age distribution of each field is skewed upward, with relatively few persons under 30 years old (table 1).

Differences in the age structures for the various groups are reflected in the median ages. The median age for all persons, including those out-of-scope and nonrespondents, was 43.7 years as of April 1976. The group with the lowest median age was computer specialists, 36.9 years; the highest median ages were for engineers, 45.8 years, and environmental scientists, 46.0 years. The median ages for the remaining groups ranged from 41.0 to 44.0 years.

Field of science or engineering in 1974. The majority of persons in the 1974 fields of science or engineering were in the same field in 1976 (table A). The highest levels of agreement between field in 1974 and field in 1976 were for persons who were engineers and psychologists in 1974 (both about 93 percent). Among persons who were designated as computer specialists in 1974, only about 74 percent were in the same field in 1976; about 6 percent were designated as engineers and 17 percent were out-of-scope. About 8 percent of the 1974 mathematical specialists had moved into the computer specialist field or the engineer field in 1976, and about 5 percent of the 1974 physcial scientists were either engineers or life scientists in 1976. Moreover, some proportion of each 1974 field was not in any of the fields of science or engineering in 1976, ranging from about 4 percent for environmental scientists to 17 percent for computer specialists.

The dispersion of the 1974 fields among the 1976 fields is shown in table A. The opposite picture—the composition of the 1976 fields in terms of the 1974 fields—is presented in table 1. About 78 percent or more of each 1976 group was composed of 1974 carryovers, except for computer specialists with 73 percent. Relatively large proportions of persons who were not in a field in 1974 or did not respond to the 1974 survey made their influence felt among the 1976 S/E fields; these made up from about 8 percent to 18 percent of each field except environmental scientists (6 percent). Conversely, about 46 percent of the 1976 out-of-scope came from 1974 S/E fields, with 24 percent entering from the 1974 engineer field.

The differences among the fields in the proportion changing fields between 1974 and 1976 may reflect, among other factors, variations in the degree of specialized training required for each field, differences in the areas of common ground among fields, and differences in the average age and experience levels of the members of the field. For instance, persons from a number of fields—computer specialists, mathematical specialists, physical scientists, and environmental scientists—show some propensity to enter the engineering field, indicative perhaps of the involvement of engineering in the practical applications of scientific principles. Common ground among the life, physical, and environmental sciences may help explain the movement of life and physical scientists into each other's fields and the movement of environmental scientists into life and physical science. Common ground may also explain the reciprocal movements of mathematical specialists and computer specialists. Relatively few engineers changed fields, and only small proportions of persons in other science or engineering fields switched into mathematics, environmental science, psychology, or social science.

For most fields, the greatest proportions of persons who left their 1974 fields moved out of the fields of science or

[4] U.S. Department of Labor, Bureau of Labor Statistics, **Employment and Earnings**, Volume 24, No. 1, January 1977.

Table A. Scientists or Engineers in 1974 Who Responded in the 1976 Survey, by Field of Science or Engineering in 1976

Field of science or engineering in 1974	Total respondents		Field of science or engineering in 1976								Not in a field of science or engineering in 1976
	Number	Percent	Computer specialists	Engineers	Mathematical specialists	Life scientists	Physical scientists	Environmental scientists	Psychologists	Social scientists	
Computer specialists	50,471	100.0	73.5	6.3	1.9	(Z)	0.4	0.1	0.2	0.4	17.1
Engineers	636,268	100.0	0.6	92.5	0.1	0.1	0.6	0.1	(Z)	0.1	5.8
Mathematical specialists	25,372	100.0	3.8	3.6	79.6	0.2	0.3	(Z)	0.1	0.5	11.9
Life scientists	69,826	100.0	(Z)	0.6	(Z)	85.6	2.9	0.2	0.2	0.3	10.1
Physical scientists	114,136	100.0	0.4	1.7	0.1	1.5	88.4	0.7	-	0.1	5.0
Environmental scientists	27,157	100.0	0.2	3.3	-	1.2	2.7	88.0	-	0.8	3.7
Psychologists	32,070	100.0	0.1	0.2	-	0.8	-	-	92.6	0.7	5.5
Social scientists	44,204	100.0	0.3	0.8	0.5	0.2	0.1	0.1	1.0	80.6	16.4

- Represents zero.
Z Less than 0.05 percent.

Source: Table 1.

engineering altogether. This outward movement was especially pronounced for the computer specialists and the social scientists, and less so for the mathematical specialists and life scientists. The movement may reflect the versatility of the training and experience of these fields, or, especially in the case of the generally young computer specialists, the mid-career movement of persons into managerial occupations.

Interfield mobility seems to have slowed somewhat between 1974 and 1976 compared with that between 1972 groups and 1974 groups as shown by the 1974 survey results. The 1974-76 diagonal (underlined cells of table A) contains generally higher proportions than its 1972-74 counterpart, and the 1976 out-of-scope proportions are generally lower than the 1974 ones. The trend toward greater stability may be illusory, however, since it could result from differential response rates for the 1976 and 1974 surveys or from the method of classifying persons into fields that substituted the most recent data from a person's 1974 or 1972 responses if 1976 data were not reported.

Social Characteristics

Race. Whites accounted for 93 percent or more of the persons in each field; Whites also made up 97 percent of the out-of-scope cases (table 2). The proportion of Blacks ranged from under 1 percent for engineers and environmental scientists to nearly 4 percent for mathematical specialists. The proportions of Japanese, Chinese, and Koreans ranged among the fields from under 1 percent to about 3 percent. The 1976 survey and 1974 survey racial distributions are nearly identical. This may indicate that there are no substantial differentials among the races in the propensity of experienced scientists and engineers to change field or to move out of S/E.

Place of residence. The sample for the National Sample of Scientists and Engineers was originally selected from the 1970 Census of Population records of persons in the 50 States and the District of Columbia; accordingly, all persons in each of the S/E fields and the out-of-scope resided in the United States at the time of the census. In the spring and summer of 1976 when the 1976 National Survey of Natural and Social Scientists and Engineers was conducted, from 97 percent to 99 percent of persons in each group were living in the United States (table 2). This range is identical to the 1974 results, possibly indicating no additional net emigration of these scientists and engineers to foreign residences.

Estimates from the March 1976 Current Population Survey[5] indicate that in March 1976, 24 percent of the total United States population 25 years old and over lived in the Northeast, 26 percent in the North Central, 32 percent in the South, and 18 percent in the West. The 1976 National Survey of Natural and Social Scientists and Engineers showed that, for mature scientists and engineers, the South and the Northeast were the major residential regions, having, in general, either the largest or second largest proportion of persons. Especially noteworthy is that at least three-fourths of the environmental scientists lived in the South and West—almost 46 percent in the South and about 32 percent in the West. Engineers were the most evenly distributed among the four regions, with approximately one-fourth residing in each. For three fields—computer specialists, physical scientists, and psychologists—the Middle Atlantic division led all other divisions as a place of residence in 1976; the leading division for environmental scientists was the West South Central, and for mathematical specialists and social scientists, the South Atlantic (see table 2). Regional distributions of residence in 1974 are similar to those based on the 1976 results, indicating limited net shifts in residential patterns.

Selected Standard Metropolitan Statistical Areas (SMSA's): 1976. Science and engineering require the combined talents of many persons. Thus, most scientists and engineers—as many as 75 to 85 percent of the persons in nearly every field—lived in metropolitan areas where such pools of talent are generally more accessible (table 2). Of the U.S. population as a whole, about 68 percent of all persons 25 years old and over lived in metropolitan areas in March 1976.[6] The one exception to the relatively pronounced metropolitan character of the scientific or engineering fields are the life scientists, a group including agricultural scientists; about 40 percent of the life scientists lived in nonmetropolitan areas.

Relatively large proportions of persons in some of the S/E fields lived in particular SMSA's. The Washington, D.C. SMSA, for example, with its concentration of government employment, had approximately 11 percent of the mathematical specialists and 13 percent of the social scientists. It contained only about 1.4 percent of the total U.S. population as of July 1, 1975.[7] The Denver, Colorado SMSA and the Houston, Texas SMSA had between 7 and 9 percent, respectively, of the environmental scientists; and the New York City SMSA had 7 percent of the computer specialists, 7 percent of the social scientists, and 8 percent of the psychologists.

The residential pattern in 1976 of the scientists and engineers is basically the same as the pattern in 1974, indicating no dramatic shifts in migration patterns during this period. However, national estimates of residential patterns of the total metropolitan population indicate that, for the most part, there was a continuation between 1974 and 1975 of large regional shifts in U.S. population.[8] Specifically, migrants have been leaving the larger and older urban centers in the Northeast and the North Central regions and have been moving to metropolitan areas in the South and West. The figures from this survey indicate that such movement has not been as pronounced for experienced scientists and engineers.

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[5] **Current Population Reports**, Population Characteristics, Geographical Mobility: March 1975 to March 1976, Series P-20, No. 305.

[6] Ibid.

[7] **Current Population Reports**, Population Estimates and Projections, Estimates of the Population of Counties and Metropolitan Areas: July 1, 1974 and 1975, Series P-25, No. 709.

[8] Ibid.

Educational Characteristics

Highest degree held. The distribution by degree level for particular fields is probably a function of the kinds of work performed by persons in these fields, the industries for which they work, and their age distribution. The computer specialist and engineering fields had a high proportion of bachelor's degrees (62 and 68 percent, respectively) and a low proportion of doctorates (7 and 5 percent, respectively). Employment among persons in these fields was concentrated in manufacturing industries in 1976, whereas the largest proportion in all other S/E fields were employed in educational institutions, in which advanced degrees are nearly always required for employment. Computer specialists are members of a relatively new field and are generally younger than persons in other fields. Engineers, on the other hand, are generally older and entered their field when a degree—even at the bachelor's level—was not as strong a prerequisite as it is today. In addition, the training acquired at the bachelor's level in engineering and computer science may be sufficient for most of the jobs held by persons in these fields, thus decreasing their incentive to pursue advanced degrees. Training beyond that acquired at the bachelor's or even the master's level, however, may be necessary for performance of many of the jobs of fields with high proportions of doctorate holders, such as psychologists.

Specifically, 62 percent of psychologists had a doctorate degree, and only 8 percent had bachelor's degrees. Among life, physical, and social scientists and mathematical specialists, at least 40 percent had doctorate degrees, and moderate proportions (from 20 to 34 percent) had bachelor's degrees (table 3).

The definitions of the various fields of science or engineering permitted only engineers and the out-of-scope group to include persons with no degree. That fewer than 4 percent of both the engineers and the out-of-scope actually fell into this category is partly a reflection of the strictness of the criteria used in delineating the core of the nation's scientific and technical manpower.

There appears to have been a slight movement of persons in some groups to higher educational levels between 1974 and 1976. The 1976 computer specialists and engineers for example, had larger proportions at the master's and doctorate levels than was true of the 1974 groups. This upward mobility in educational patterns, however, may be related to variations in the memberships of the groups between 1974 and 1976, or to the fact that persons with advanced degrees may be more likely than other persons to respond to the National Sample Surveys, this tendency, if valid, would introduce some false changes into the educational patterns of the groups over time. Thus, the 1974-76 educational changes do not necessarily reflect an increase in the general educational level of the groups.

Major field of study of highest degree held. Most of the scientists and engineers received their academic training in a discipline corresponding to their S/E field.[9] Though this strong positive relationship between field and academic training is partially a reflection of the criteria for classification in a field, it is also a likely result of the requirements of the kinds of work performed by persons in the fields. Except for computer specialists, at least three-fourths of the scientists and engineers had majored in a corresponding discipline (table B). Psychologists, the field with the largest proportion of doctorate holders, also had one of the highest levels of agreement between S/E field and education (92

[9] See the table in appendix B for the list of corresponding major fields of study for each field of science or engineering.

Table B. Scientists or Engineers in 1976 With a Degree, by Major Field of Study for Highest Degree Held

Field of science or engineering in 1976	Total with a degree		Major field of study for highest degree held		
	Number	Percent	Corresponding field of study[1]	Other field of study	Field of study not reported
Computer specialists	50,691	100.0	13.0	85.9	1.0
Engineers	641,226	100.0	86.5	12.7	0.9
Mathematical specialists	24,831	100.0	80.4	19.0	0.6
Life scientists	70,027	100.0	89.6	9.5	0.8
Physical scientists	117,043	100.0	82.9	16.6	0.4
Environmental scientists	26,997	100.0	76.0	23.1	0.9
Psychologists	34,186	100.0	91.8	7.6	0.5
Social scientists	45,582	100.0	79.4	20.1	0.5

[1] See table in appendix B for a listing of corresponding fields of study.

Source: Table 3.

percent). Computer specialists, in contrast, had varied academic backgrounds; only 13 percent had majored in computer science and systems analysis, whereas 24 percent had majored in the mathematical sciences, 16 percent in engineering, and 26 percent in the category "all other fields." This variety is related, perhaps, to the recent emergence of computer-related subjects in the degree programs of most colleges and universities. It is also related, no doubt, to the surge in demand for computer specialists during the late 1950's and throughout the 1960's, a demand apparently met by an influx of persons from varied academic backgrounds.

Some fields had relatively large proportions of persons who had majored in academic subjects only peripherally related to their 1976 S/E field. This interdisciplinary pattern, in fact, is somewhat similar to the interfield pattern discussed previously and may be related to it. Note, in this regard, that about 12 percent of the environmental scientists had majored either in engineering or physics/astronomy; computer specialists, as mentioned above, came from varied educational backgrounds; about 8 percent of the physical scientists had studied biological science; and 16 percent of the social scientists had majored in "all other fields" (see table 3).

Supplemental training in 1975. The amount of scientific and engineering knowledge continues to grow at a rapid pace. To keep abreast of the latest developments in their fields and to ward off the threat of obsolescence, scientists and engineers must continually update and renew their education and training. Thus, the proportions in the groups who received some kind of supplemental training in 1975 ranged rather uniformly from about 25 percent for social scientists to 40 percent for psychologists and for the out-of-scope (table 3). Computer specialists, however, were the notable exception to this range, with 57 percent having received supplemental training in 1975. This exceptional proportion for computer specialists may be related to the small number who had majored in computer science and systems analysis for their highest degree. Also, it may reflect the especially rapid changes in data processing. For almost all groups, such supplemental training was received primarily from employers (table C).

The pattern among the groups in the receipt of supplemental training was about the same for both the 1976 and 1974 groups. A greater proportion of the 1976 psychologists, however, may have received supplemental training in 1975 (40 percent) than was true for the 1974 psychologists in 1973 (35 percent).

Employment Characteristics

Employment status in February 1976 and February 1975. In February 1976, the labor force participation rate of each field (i.e., the number in the labor force divided by the total number in the field) was 90 percent or more (table 4). The comparable figure for the total noninstitutional population 20 years and older for February 1976 was 63 percent,[10] and that for males 20 and over was 80 percent. The relatively high participation rates of the National Sample may reflect, in large part, the selection of National Sample from among persons who were in the experienced civilian labor force in 1970.

The unemployment rate (the number unemployed divided by the total number in the labor force) was between 1 and 2 percent for most of the fields (table D). The national unemployment rate (not seasonally adjusted) for February 1976 was 8.7 percent for the total noninstitutional population, 7.5 percent for the noninstitutional population 20 years and older, 7.2 percent for men 20 years and older, and 3.2 percent for professional and technical workers.[11] This last group is the most comparable to the universe represented by the National Sample.

The fields covered by the National Sample appear to have escaped the worst effects of the recession that began in late 1973 and ran through 1975. Unemployment rates for the 1974, 1975, and 1976 periods, though perhaps somewhat higher than those for 1973, were between 1 and 2 percent for most of the fields. This relative insulation of the fields from recessionary woes may have resulted from a number of factors. The fields, of course, contain skilled and experienced workers and consist mostly of older males. Such persons have traditionally had low unemployment rates.

Among persons who were employed in February 1976, approximately 90 percent or more in each field were working full time (table E). In the civilian labor force as a whole in February 1976, about 85 percent of employed persons 25 years old and over were on full-time schedules; and about 86 percent of the professional and technical workers who were at work were on full-time schedules, as were about 95 percent of the employed managers and administrators except farm.[12] Among the National Sample fields, psychologists had the highest proportion of part-time workers (7 percent). Computer specialists and engineers each had only about 1 percent employed part time. This contrast between the psychologists and the computer specialists and engineers may be related to their respective industry employment patterns. Psychologists are concentrated in educational institutions and health services where the opportunities for part-time employment may be greater than in manufacturing, in which large proportions of computer specialists and engineers are employed.

Among those persons who reported that they were working part time in 1976, the majority in each field indicated that they preferred part-time work (table F). The range of those preferring part-time work went from about 72 percent for engineers to almost 84 percent for computer specialists.

The National Sample of Scientists and Engineers includes only persons who were in selected occupational categories in 1970 and does not include any new entrants into these fields since 1970. Thus, retirement is expected to play an increasingly larger role as a reason for being outside the labor force (table G). Accordingly, larger proportions in each field

[10] U.S. Department of Labor, Bureau of Labor Statistics, **Employment and Earnings**, Vol. 22, No. 9, March 1976.

[11] Ibid.

[12] Ibid.

Table C. Scientists or Engineers in 1976 With Supplemental Training in 1975, by Type of Supplemental Training

Type of supplemental training[1]	Field of science or engineering in 1976								Not in a field of science or engineering in 1976
	Computer specialists	Engineers	Mathematical specialists	Life scientists	Physical scientists	Environmental scientists	Psychologists	Social scientists	
TOTAL WITH SUPPLEMENTAL TRAINING									
Number	28,868	246,915	6,862	23,857	36,412	9,278	13,648	11,530	62,989
Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
On-the-job training	59.4	44.8	50.1	55.4	45.9	48.5	46.8	45.5	51.0
Military training applicable to civilian occupations	1.5	2.1	2.7	1.6	1.5	1.3	2.1	2.3	2.4
Extension or correspondence courses	7.0	9.7	11.8	10.5	9.4	9.5	7.1	13.1	9.6
Employer training programs	56.8	46.0	38.6	33.8	36.7	42.1	18.8	39.7	40.6
Adult education center	11.4	10.9	7.4	12.1	11.1	12.3	11.6	12.8	11.2
Other training	23.8	20.3	25.6	27.9	23.6	22.8	51.8	30.5	27.0

[1]Sum of individual categories may exceed 100.0 percent because persons may have received more than one type of training.

Source: Table 3.

Table D. Scientists or Engineers in the Labor Force by Employment Status, for February 1976 and February 1975

Employment status	Field of science or engineering in 1976								Not in a field of science or engineering in 1976
	Computer specialists	Engineers	Mathematical specialists	Life scientists	Physical scientists	Environmental scientists	Psychologists	Social scientists	
TOTAL IN LABOR FORCE IN FEBRUARY 1976									
Number	48,864	613,766	23,180	65,076	108,723	25,511	32,233	41,564	148,378
Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Employed	98.6	97.9	98.1	98.4	98.5	99.1	97.3	98.4	97.9
Unemployed	1.4	2.1	1.9	1.6	1.5	0.9	2.7	1.6	2.1
TOTAL IN LABOR FORCE IN FEBRUARY 1975									
Number	48,261	608,386	23,116	64,876	108,431	25,505	31,614	41,478	145,676
Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Employed	98.8	98.4	99.1	99.0	98.6	99.5	98.4	99.3	97.8
Unemployed	1.2	1.6	0.9	1.0	1.4	0.5	1.6	0.7	2.2

Source: Table 4.

Table E. Employed Scientists or Engineers by Full-Time and Part-Time Work Status, for February 1976 and February 1975

Work status	Field of science or engineering in 1976								Not in a field of science or engineering in 1976
	Computer specialists	Engineers	Mathematical specialists	Life scientists	Physical scientists	Environmental scientists	Psychologists	Social scientists	
TOTAL EMPLOYED IN FEBRUARY 1976									
Number	48,159	600,994	22,737	64,057	107,112	25,277	31,373	40,882	145,243
Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Full time	98.5	98.5	96.2	95.4	96.1	97.5	91.6	95.0	95.6
Part time	1.4	1.3	3.3	3.4	2.6	1.4	7.4	4.0	3.8
Full or part time not reported	0.1	0.2	0.5	1.3	1.3	1.2	1.0	1.0	0.6
TOTAL EMPLOYED IN FEBRUARY 1975									
Number	47,689	598,632	22,912	64,219	106,955	25,382	31,096	41,176	142,483
Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Full time	96.5	97.1	94.0	93.8	94.3	95.4	89.6	93.3	95.0
Part time	1.4	1.2	4.5	3.4	2.5	2.0	7.5	4.4	3.6
Full or part time not reported	2.1	1.7	1.5	2.8	3.1	2.7	2.9	2.3	1.4

Source: Table 4.

Table F. Scientists or Engineers in 1976 Employed Part Time in February 1976, by Desire for Full-Time Work

Desire for full-time work	Field of science or engineering in 1976								Not in a field of science or engineering in 1976
	Computer specialists	Engineers	Mathematical specialists	Life scientists	Physical scientists	Environmental scientists	Psychologists	Social scientists	
TOTAL EMPLOYED PART TIME IN FEBRUARY 1976									
Number	660	7,918	757	2,149	2,804	349	2,318	1,637	5,477
Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Seeking full-time work	14.7	21.7	19.3	20.1	15.9	10.0	22.0	21.5	22.0
Not seeking full-time work	83.5	71.8	74.8	79.4	79.9	79.1	75.1	76.9	76.4
Not reported	2.0	6.5	5.8	0.6	4.2	11.2	2.8	1.6	1.6

Source: Table 4.

gave retirement as a reason for nonparticipation in February 1976 than in February 1975 or than in the 1974 results.

Unemployment during 1975. About 2 to 5 percent of the persons in each field of science and engineering in 1976 were unemployed at some time during the 1975 calendar year; for the out-of-scope cases, the proportion was about 7 percent (table 4). For those who did experience unemployment, the duration was likely to be a month or more (table H). Within most groups, approximately three-fourths of those who were unemployed during 1975 had looked for work for 4 weeks or more, at least 60 percent had looked for more than 10 weeks, at least 40 percent beyond 14 weeks, and at least 15 percent beyond 26 weeks. The average (mean) duration of unemployment of all persons in 1975, according to the CPS, was 14.1 weeks.[13] The median weeks of unemployment for the unemployed in the National Sample groups in 1975 ranged from 7.9 weeks for computer specialists to 15.8 weeks for life scientists.

Duration of unemployment is a function, among other things, of the state of the economy, the reasons for unemployment, and the resources available for job searching. Differences in durations among the groups, or between the groups and the CPS estimates for the Nation could result from differences in any or all of these factors.

Occupation of employment in February 1976 and February 1975. As explained in the Definitions and Explanations Section, occupation was not a prerequisite for classification into a field of science or engineering. It was possible, therefore, for persons in these fields to work in positions not related to science or engineering. Likewise, out-of-scope persons could have worked in positions related to science or engineering.

Social scientists tended to work outside of science or engineering more so than persons in other fields (table 4). For all the groups except social scientists and the out-of-scope, 90 percent or more of the full-time employed reported that they were working in a position related to science and engineering in February 1976 and in February 1975. This was true for only about 83 percent of the social scientists and 62 percent of the out-of-scope. For most of the groups, relatively few of the persons working in non-S/E positions in February 1976 did so because S/E positions were not available (table I). Though it is not clear that S/E positions were available for the remaining persons, many of them apparently worked outside S/E for more or less voluntary reasons. Of the small number of engineers and physical scientists reporting work in non-S/E areas, a notable 40 percent were promoted out of S/E positions, a finding that may be a reflection of a tendency of persons in these fields to become managers and administrators.

Most of the persons working in occupations which did not correspond to their S/E fields were working as managers and administrators, although 8 percent of the physical scientists were in the interdisciplinary occupations of biochemists and biophysicists (table 5). All fields except two—computer

[13] **Employment and Earnings, op. cit.,** Vol. 22, No. 7, January 1976.

Table G. Scientists or Engineers in 1976 Not in the Labor Force in February 1976, by Reasons for Nonparticipation

Reasons for nonparticipation in the labor force	Field of science or engineering in 1976								Not in a field of science or engineering in 1976
	Computer specialists	Engineers	Mathematical specialists	Life scientists	Physical scientists	Environmental scientists	Psychologists	Social scientists	
TOTAL NOT IN LABOR FORCE IN FEBRUARY 1976									
Number	1,827	44,783	1,651	4,951	8,320	1,486	1,953	4,017	9,181
Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Retired	32.7	92.2	66.3	66.8	78.9	83.3	61.3	66.1	[illegible].7
Other	66.4	6.1	32.9	33.0	20.1	6.7	38.0	30.2	[illegible].3
Not reported	0.9	1.7	0.7	0.2	1.0	10.0	0.7	3.7	1.0
TOTAL NOT IN LABOR FORCE IN FEBRUARY 1975									
Number	1,665	33,199	1,358	3,703	6,734	1,061	1,518	3,080	9,063
Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Retired	24.3	91.8	60.2	63.8	76.8	88.2	50.9	63.7	58.3
Other	71.5	5.5	27.6	33.7	22.3	9.2	45.9	32.8	40.7
Not reported	4.2	2.7	12.3	2.4	0.9	2.5	3.2	3.6	1.0

Note: Detail may not add to total because of rounding.

Source: Table 4.

Table H. Scientists or Engineers in 1976 Reporting Unemployment During Calendar Year 1975, by Duration of Unemployment

Duration of unemployment	Field of science or engineering in 1976								Not in a field of science or engineering in 1976
	Computer specialists	Engineers	Mathematical specialists	Life scientists	Physical scientists	Environmental scientists	Psychologists	Social scientists	
TOTAL UNEMPLOYED IN CALENDAR YEAR 1975									
Number	2,299	28,918	868	2,107	3,864	654	1,719	1,675	11,036
Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1 to 4 weeks	25.0	15.9	15.1	26.0	14.4	16.5	12.3	15.2	20.7
5 to 10 weeks	33.1	18.7	23.2	9.6	16.6	17.7	16.1	22.4	17.3
11 to 14 weeks	10.8	9.1	16.9	8.6	13.8	3.7	18.6	18.6	20.3
15 to 26 weeks	9.3	15.9	16.0	24.8	12.8	11.0	15.2	21.6	12.0
27 weeks or more	14.7	29.4	20.0	27.0	35.2	13.0	30.1	16.5	24.1
Duration not reported	7.2	10.9	8.6	4.1	7.2	37.9	7.8	5.8	5.7

Note: Detail may not add to total because of rounding.

Source: Table 4.

Table I. Full-Time Employed Scientists or Engineers Working in Positions Not Related to Science or Engineering, by Reasons: February 1976

Reasons for being in a position not related to science or engineering	Field of science or engineering in 1976								Not in a field of science or engineering in 1976
	Computer specialists	Engineers	Mathematical specialists	Life scientists	Physical scientists	Environmental scientists	Psychologists	Social scientists	
TOTAL NOT IN SCIENCE OR ENGINEERING									
Number	1,283	19,434	1,360	2,915	1,365	371	2,113	6,102	50,161
Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Preferred nonscience or nonengineering	38.1	14.7	15.0	37.9	26.7	38.3	36.5	33.1	29.6
Promoted out of science or engineering	24.2	39.6	21.1	17.2	47.9	13.5	9.9	9.2	18.0
Pay better in nonscience or nonengineering	5.5	8.5	6.0	14.6	2.1	6.7	6.4	3.8	11.0
Locational preference	6.5	4.1	20.3	4.7	1.8	-	3.8	10.0	5.3
Science or engineering position not available	4.0	13.9	3.9	4.9	10.0	3.0	3.0	5.5	6.8
Other reason	14.3	14.9	31.8	9.6	7.5	32.1	28.9	25.8	23.0
Reason not reported	7.4	4.3	2.0	11.1	3.7	6.7	11.5	12.6	6.3

- Represents zero.

Note: Detail may not add to total because of rounding.

Source: Table 4.

specialists and environmental scientists—had between 12 and 23 percent reporting employment in managerial or administrative positions. The small proportion of computer specialists (about 2 percent) who were managers and administrators may reflect the relatively youthful age structure of this field.

The occupational structure in 1976 of the out-of-scope persons reveals, as expected, a more varied pattern of occupational participation than is found among the fields (table 5). The out-of-scope had the highest proportion of managers and administrators and of persons in "other occupations."

Somewhat greater proportions of most groups were working as managers and administrators in 1976 than in 1974. This trend was expected, because of the gain in work experience over time. Two groups with large 1974-76 gains were social scientists and the out-of-scope, each of which had increases of about 6 percentage points in the proportion of managers and administrators.

Table 5 also provides more detailed information on the subcategories of occupations held by persons in the various fields. The largest specific occupational categories for engineers in 1976 were electrical and electronic (20 percent), mechanical (17 percent), and civil and architectural (12 percent). Among employed mathematical specialists, nearly half were working as mathematicians and about one-fourth as statisticians. Agricultural scientists (30 percent) and biological scientists (26 percent) were the primary occupations for employed life scientists; chemists made up 48 percent of the employed physical scientists. Approximately three-fourths of the employed environmental scientists were earth scientists. Together, economists and other social scientists (e.g., political scientists, urban and regional planners, etc.) comprised at least 50 percent of the employed social scientists.

Industry of employment in 1976. The patterns of employment among industries were generally the same for the groups in 1976 as in 1974. In both periods, these patterns were marked by high concentrations, in general, among manufacturing and among the service industries, particularly educational institutions (table 5). The 1976 annual averages from the CPS indicate that among the employed professional and technical workers in 1976, 15 percent worked in manufacturing and about 68 percent in service industries.[14] The 1974 and 1976 patterns for the National Sample groups show that most of the groups had 50 percent or more in these two industries, and, depending upon the group, 40 percent or more were employed in either manufacturing or in educational institutions.

Within specific manufacturing industries, electronic machinery and computing equipment manufacturers employed the largest proportions of computer specialists (24 percent) and engineers (12 percent). The production of chemicals and allied products was most important for physical scientists (25 percent). For all other fields, except environmental scientists, the largest proportions of persons were employed in educational institutions, primarily colleges or universities. Environmental scientists were uniformly distributed by industry, with about 28 percent in mining or petroleum extraction and 17 percent in educational institutions. There were other significant industries of employment for most fields, such as agriculture, forestry, and fisheries for life scientists; health services for psychologists; public administration for social scientists; and services (other than education and health) for the other fields.

Primary work activity in 1976. In general, research and development, management and administration, and teaching were the major work activities of the National Sample groups in 1976, a pattern that mirrors that of the 1974 groups (table 5). Between 30 and 42 percent of the engineers and of the life, physical, and environmental scientists were primarily active in research and development (R/D). For engineers the development and design sides of R/D were uppermost, whereas basic or applied research was more important for the latter three groups. All of the groups had nearly 20 percent or more of their employed members primarily involved in management or administration (a fact that agrees well with the relatively large proportions in these groups who reported their occupation in 1976 as administrators or managers). Engineers (34 percent) and the out-of-scope (44 percent) had particularly large proportions who were primarily involved in management or administration. Teaching was the primary activity of nearly one-third of the employed mathematical specialists and social scientists and of one-fourth of the employed psychologists.

Within particular groups, certain other activities were also important. This is true of computer applications for the computer specialists, production and inspection for the engineers, statistical work for the mathematical specialists, and clinical diagnosis for the psychologists.

The primary work activities of one group, computer specialists, have changed significantly since 1974. Nearly 65 percent of employed computer specialists were primarily active in computer applications in 1974; the proportion in 1976 is 40 percent. Management and administration was less prevalent in 1974 (13 percent) than in 1976 (19 percent). In 1974, 6 percent of the employed computer specialists were involved in research and development as a primary activity; the 1976 proportion is 17 percent, with about half involved in development. These changes, though they may be partly the result of the 1976-74 response differentials or of the movements of persons among National Sample groups, may reflect an expansion of the scope of the computer field and of the increasing age of this group.

Basic annual salary. Basic annual salary refers to salary before deductions for income tax, social security, retirement, etc., but does not include bonuses, overtime, summer teaching, or other payment for secondary jobs. The data on basic annual salary in this report relate to the job held by full-time employed persons in February 1976. The salaries of most of the full-time persons in the National Sample groups who reported salary were between $15,000 and $40,000.

[14] U.S. Department of Labor, Bureau of Labor Statistics, **Employment and Unemployment in 1976**, Special Labor Force Report 199.

Computer specialists had the smallest proportion of persons (11 percent) in the extreme categories of the distribution, 1 percent in the categories under $10,000 and 10 percent in those over $30,000. The proportion earning less than $10,000 was within a range of 1 percent to 3 percent for the other groups. At the high end of the salary distribution, fewer than 20 percent of the engineers and life scientists had salaries of $30,000 or more, whereas almost 30 percent of the environmental scientists had salaries in this range. Three groups—environmental scientists, social scientists, and the out-of-scope—had about 7 percent of their full-time employed members with salaries of $40,000 or more; conversely, under 1 percent of the computer specialists had salaries in this range.

Except for life scientists (whose median salary was $20,893) the median 1976 basic annual salaries for the full-time employed members of all the groups were at least $21,000 (table J). In fact, 5 of the 8 fields—engineers, mathematical specialists, physical scientists, environmental scientists, and social scientists—had median incomes at or above $23,000, with the highest median salary being $25,289 for environmental scientists. As noted above, environmental scientists and engineers were older, on the average, than persons in other fields, and, thus, would most likely have had more labor force experience and higher salaries. The figures are at too high a level of aggregation, however, to indicate any consistent relationship, if one exists, between the median salary and the median age or the degree level for the fields. Also, it should be noted that between 6 and 12 percent of the full-time employed persons in each field did not report basic annual salary.

The median earnings in 1975, as estimated by the CPS, for male professional, technical, and kindred workers, 14 years old and over, who worked year-round full time, was $16,133.[15] The comparable figure for females was $10,639. Male year-round full-time workers 25 years old and over with 4 years of college (regardless of occupation) had a median income in 1975 of $17,477, and for those with 5 or more years of college the median was $19,658.[16] These figures are not strictly comparable with the data presented in this report for the National Sample groups, however. The categories "earnings" and "income" include more sources of financial support than are included in the concept "basic annual salary," and there are other differences between the concepts, as well as in the reference periods for the two sets of data. CPS figures for 1975 are cited because 1975 is thought to be the full year most nearly comparable with the reference year for the question on basic annual salaries which was asked early in 1976.

The median salaries of the full-time employed in 1974, based on the 1974 survey, ranged from $18,419 for computer specialists to $20,206 for social scientists (table K). Environmental scientists, who had the highest median in 1976, also had one of the highest median salaries in 1974. The 1976 medians were about $3,700 greater, on the average, than the 1974 medians.

When the 1974 medians for the National Sample groups are expressed in terms of constant or 1975 dollars (i.e., when the effects of price changes are removed from the

[15] **Current Population Reports,** Money Income in 1975 of Families and Persons in the United States, Series P-60, No. 105.
[16] Ibid.

Table J. Full-Time Employed Scientists or Engineers Reporting Basic Annual Salary, by Basic Annual Salary: 1976

Basic annual salary[1]	Field of science or engineering in 1976								Not in a field of science or engineering in 1976
	Computer specialists	Engineers	Mathematical specialists	Life scientists	Physical scientists	Environmental scientists	Psychologists	Social scientists	
TOTAL REPORTING BASIC ANNUAL SALARY									
Number	44,232	523,921	20,477	56,060	93,519	21,747	26,320	35,935	116,678
Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Less than $8,000	0.3	0.4	0.8	1.2	0.7	0.5	0.8	1.4	1.2
$8,000 to $9,999	0.8	0.5	0.3	1.0	0.7	0.6	0.4	0.8	1.8
$10,000 to $14,999	5.4	4.1	7.0	12.0	8.0	4.3	7.3	6.3	12.2
$15,000 to $19,999	26.6	21.9	21.3	28.7	20.8	17.0	24.2	18.7	22.8
$20,000 to $24,999	38.5	33.4	28.4	25.5	28.4	25.4	30.2	27.0	24.9
$25,000 to $29,999	18.1	21.4	22.6	16.9	18.7	23.0	17.5	19.8	15.6
$30,000 to $39,999	9.4	13.9	15.9	11.1	18.2	22.0	14.9	18.5	14.3
$40,000 to $49,999	0.7	2.5	3.3	2.2	3.2	4.1	[illegible]	4.2	3.4
$50,000 and over	0.2	1.7	0.4	1.3	1.4	3.1	[illegible]9	3.2	3.7
Median salary (dollars)	21,583	23,176	23,551	20,893	23,132	25,289	22,55[illegible]	24,217	22,040

[1]Refers to job held in February 1976.

Note: Detail may not add to total because of rounding.

Source: Table 5.

Table K. Median Basic Annual Salaries of Full-Time Employed Persons in the 1974 and 1976 Fields of Science or Engineering in Current and Constant (1975) Dollars, by Field of Science or Engineering

Field of science or engineering	Basic annual salary in 1976 of 1976 S/E fields in current dollars[1]	Basic annual salary in 1974 of 1974 S/E fields[2]		Change between the 1974 and 1976 S/E fields	
		In current dollars	In constant (1975) dollars[3]	In current dollars	In constant (1975) dollars[3]
Computer specialists	$21,583	$18,419	$22,308	$3,164	-725
Engineers	23,176	19,430	23,532	3,746	-356
Mathematical specialists	23,551	19,781	23,957	3,770	-406
Life scientists	20,893	17,807	21,566	3,086	-673
Physical scientists	23,132	19,544	23,670	3,588	-538
Environmental scientists	25,289	20,074	24,312	5,215	977
Psychologists	22,551	19,453	23,560	3,098	-1,009
Social scientists	24,217	20,206	24,472	4,011	-255
Out-of-scope	22,040	18,353	22,228	3,687	-188

[1]Refers to job held in February 1976.
[2]Refers to job held in January 1974.
[3]For derivation of constant (1975) dollars, see "Explanations and Definitions".

Source: Table 5 and unpublished tabulations based on the 1974 survey.

1974-76 changes), the 1974-76 comparisons reveal that at least three groups—computer specialists, engineers, and psychologists—experienced a slight decline in real basic annual salary rates between 1974 and 1976 (table K). Although table K shows declines for all other groups except environmental scientists, these apparent declines are not statistically significant. The apparent increase for environmental scientists is also not statistically significant.

These 1974-76 comparions in terms of constant or 1975 dollars must be approached cautiously, however. Problems are introduced into the comparisons by, among other things, the way the basic annual salary data are defined and collected, the nonresponse rates to the 1974 and 1976 surveys in general and to the salary items in particular, and the difficulty of establishing appropriate time periods for the constant-dollar computations. The trends, nevertheless, are also reflected in data from the CPS. In constant 1975 dollars, the CPS figures show that among male year-round full-time workers 14 years old and over, there was a decrease between total money earnings in 1973 and total money earnings in 1975 of $1,193 for professional, technical, and kindred workers, of $1,491 for managers and administrators except farm, and of $790 for all such workers regardless of occupation.[17]

Federal support. The importance of the Federal Government to S/E activities in this country is shown clearly by the proportion in each group who received some kind of Federal financial support for their work (table 5). For most groups, between about 35 and 40 percent, with a high of 50 percent for life scientists, received Federal support. Even the lowest groups—computer specialists and the out-of-scope—had nearly 25 percent of their members reporting Federal support. In addition, the proportion of each group supported by Federal funds has remained nearly constant since 1974.

The Department of Defense, was the most important source of Federal support in 1976 among computer specialists, engineers, mathematical specialists, and physical scientists. For life scientists, including agricultural scientists, the Department of Agriculture was the greatest single source of Federal support, as was the Department of Health, Education, and Welfare (HEW) for psychologists and social scientists. The chief support for environmental scientists was more varied, coming from four Government organizations: The National Science Foundation, the Department of the Interior, the Department of Defense, and the Department of Commerce. The 28 percent of the employed psychologists who were supported at least in part by the Department of Health, Education, and Welfare was the largest proportion in any one field to be supported by any one agency.

Some fields received substantial support from departments or agencies other than the primary source cited above. A relatively significant proportion of employed life scientists (16 percent), and employed mathematical specialists and physical scientists (both about 8 percent) were supported by the Department of Health, Education, and Welfare (HEW). The Energy and Research Development Administration also provided support to 9 percent of the employed physical scientists. The National Aeronautics and Space Administration (NASA) was a significant source of support of employed engineers (7 percent); and the National Science Foundation supported about 6 percent of the employed mathematical specialists and physical scientists.

The chief sources of Federal support to the 1976 groups were nearly the same as those for the 1974 groups. A significantly larger proportion of the 1976 psychologists than of the comparable 1974 group, however, received support from

[17]**Current Population Reports**, Series P-60, No. 106, op. cit., and **Current Population Reports**, Money Income in 1973 of Families and Persons in the United States, Series P-60, No. 97.

HEW—28 percent compared with 18 percent. The increased contribution of HEW to psychologists made it, as stated above, the largest single source of any one field; for the 1974 groups, the Department of Defense and the Department of Agriculture jointly held this position, with their support of 21 percent of the engineers and 21 percent of the life scientists, respectively. Another notable difference between the 1974 and 1976 groups was the increased proportion of employed mathematical specialists receiving HEW funds (4 percent in 1974, 9 percent in 1976).

Job Mobility in 1975 and 1976, 1974 and 1976, and 1972 and 1976. In general, among persons employed in the 2 years being compared, between 10 and 15 percent changed jobs in the 1-year 1975-76 period, 20 to 30 percent did so in the 2-year 1974-76 period, and about 35 to 50 percent in the 4-year 1972-76 period (table L). The mobility differentials among the time spans may be exaggerated, however, because of the high nonresponse rates, which ranged between 9 and 14 percent, for the 1974-76 and 1972-76 periods. The computer specialists and the out-of-scope group each had one of the highest proportions of job changers in each period. The high rates for the out-of-scope groups may be related to the factors that caused these persons to be outside of the S/E fields. The rates of the computer specialists may be partially accounted for by the relatively youthful average age of this group, the propensity to change jobs being greater among younger workers than among older workers in general.[18]

Job changing was somewhat more prevalent in the 1973-74 period than in the 1975-76 period and was also higher in the 1972-74 period than in the 1974-76 period. However, the out-of-scope were the most likely job-changers in all periods.

Persons who changed jobs between February 1975 and February 1976 were likely to remain within the same detailed occupation group (table M). About 40 percent or

[18] See U.S. Department of Labor, Bureau of Labor Statistics, **Job Tenure of American Workers, January 1973**, Summary Special Labor Force Report, May 1974.

Table L. Scientists or Engineers in 1976 by Job Mobility: 1975 to 1976, 1974 to 1976, and 1972 to 1976

Job mobility	Field of science or engineering in 1976								Not in a field of science or engineering in 1976
	Computer specialists	Engineers	Mathematical specialists	Life scientists	Physical scientists	Environmental scientists	Psychologists	Social scientists	
TOTAL EMPLOYED IN FEBRUARY 1975 AND IN FEBRUARY 1976									
Number	46,823	584,749	22,358	62,672	105,172	24,805	30,269	40,072	139,501
Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Job change between 1975 and 1976	15.3	11.6	13.4	12.8	9.8	11.4	13.7	14.9	19.8
Same job in 1975 and 1976	83.2	86.1	84.4	85.5	88.6	85.9	84.7	83.0	77.3
Not reported	1.5	2.3	2.1	1.7	1.6	2.7	1.6	2.1	2.8
TOTAL EMPLOYED IN 1974 AND IN FEBRUARY 1976									
Number	45,978	567,300	21,778	60,588	100,974	24,182	29,139	37,833	131,790
Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Job change between 1974 and 1976	31.4	24.8	23.4	22.0	20.6	23.4	24.1	27.5	34.7
Same job in 1974 and 1976	59.1	63.2	66.7	68.5	69.6	62.4	67.6	63.5	51.9
Not reported	9.5	12.0	9.9	9.4	9.8	14.2	8.3	9.0	13.5
TOTAL EMPLOYED IN 1972 AND AND IN FEBRUARY 1976									
Number	46,743	583,557	21,984	61,693	103,229	24,114	29,758	39,012	136,778
Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Job change between 1972 and 1976	50.3	40.0	33.9	35.5	32.8	35.8	37.7	41.4	53.8
Same job in 1972 and 1976	40.0	47.4	55.9	55.6	56.6	49.9	52.8	49.0	33.2
Not reported	9.7	12.6	10.2	9.9	10.6	14.3	9.5	9.6	13.0

Note: Detail may not add to total because of rounding.

Source: Table 5.

Table M. Scientists or Engineers in 1976 Who Changed Jobs Between February 1975 and February 1976, by Occupational Mobility

Occupational mobility	Field of science or engineering in 1976								Not in a field of science or engineering in 1976
	Computer specialists	Engineers	Mathematical specialists	Life scientists	Physical scientists	Environmental scientists	Psychologists	Social scientists	
TOTAL WITH JOB CHANGE									
Number	7,162	67,973	3,006	8,025	10,324	2,817	4,150	5,970	27,640
Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Changed occupation	32.5	27.1	26.1	22.0	24.3	15.8	24.5	24.0	50.6
Did not change occupation	43.0	50.5	52.1	57.8	58.1	67.8	61.7	61.5	30.7
Not reported	24.5	22.4	21.8	20.2	17.6	16.4	13.7	14.6	18.7

Note: Detail may not add to total because of rounding.

Source: Table 5.

more, up to the 68 percent for environmental scientists, of the job-changers in each S/E field reported work in the same detailed occupation for both jobs; the out-of-scope figure of 30.7 percent was the smallest of any of the groups. Although there seemed to be differences among the fields in the proportions changing occupations, the large number of not reported cases makes most comparisons unreliable. However, it does appear, as expected, that the out-of-scope group had the highest proportion of persons who left their former occupation group when changing jobs. Comparisons between the figures on occupational changes for the 1974 groups and those for the 1976 groups are also difficult to make, owing to the large proportions in both years who did not report occupation in one or both years.

Professional experience. As expected, years of professional experience and age are closely related, older persons in general having more opportunity to gain professional experience than younger ones (table N). Computer specialists, the group with the lowest median age, also had the lowest median for years of professional experience, 11.3 years; the oldest groups, engineers and environmental scientists, had the highest medians for years of professional experience, 19.1 and 19.4 years, respectively. Partially because the National Sample includes only persons who were in the labor force in 1970, most of the persons in each field were seasoned professionals with at least 6 years of experience. The bulk of the members of each group had between 6 and 30 years of professional experience. The upper end of the distributions (persons with 31 years or more experience) contained between 10 and 15 percent of some groups, though only 2 percent of the computer specialists and 6 percent of the psychologists were in these categories. Because professional experience was defined to include time in all professional jobs, including teaching, some of the professional experience of the persons in each group was probably gained in jobs outside of their current groups; this is especially true for many of the computer specialists who had more than 30 years of professional experience.

National interest topics. There was considerable diversity among fields in the topics of critical national interest on which their members spent the most time (table 5). Major proportions of the life scientists and psychologists (both at least two-thirds), and environmental scientists (79 percent) reported that they devoted a significant proportion of their time to at least one of the topics; only about one-third of the computer specialists reported such involvement.

The chief topic reported for each S/E field was one of the following: education (primarily teaching), national defense, energy and fuel, environmental protection and pollution control. Teaching was the most significant topic for the mathematical specialists (18 percent) and the social scientists (13 percent), reflecting the large proportions in these fields who worked for educational institutions. National defense was uppermost among engineers and computer specialists; energy and fuel for environmental scientists; environmental protection and pollution control for life and physical scientists; and health and education for psychologists.

The introduction in 1976 of "national defense" as a topic of critical national interest tends to complicate comparisons between the topics reported by the 1976 groups and those of the 1974 groups. Somewhat greater proportions of the 1976 engineers and computer specialists than of the 1974 members of these fields were involved, however, in areas of critical national interest. The opposite was true for the life scientists and psychologists. Education was less important for the social scientists and the psychologists in 1976 than in 1974. Education also decreased considerably for the mathematical specialists (from 32 percent in 1974 to 20 percent in 1976); but almost 13 percent of the 1976 mathematical specialists reported "national defense" as their most significant topic. There is some evidence that food production and technology was more important in 1976 than in 1974 for the life scientists.

Table N. Scientists or Engineers in 1976 Reporting Years of Professional Experience, by Number of Years

Years of professional experience	Field of science or engineering in 1976								Not in a field of science or engineering in 1976
	Computer specialists	Engineers	Mathematical specialists	Life scientists	Physical scientists	Environmental scientists	Psychologists	Social scientists	
TOTAL REPORTING YEARS OF PROFESSIONAL EXPERIENCE									
Number	48,584	616,264	23,307	66,085	111,037	25,834	32,260	42,178	145,383
Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Less than 1 year	0.1	0.1	-	0.2	0.1	0.1	0.1	0.4	0.6
1 to 5 years	4.0	2.1	4.7	7.6	6.2	5.6	11.0	7.3	7.4
6 to 10 years	37.4	16.4	27.4	20.9	20.1	12.6	25.7	26.7	21.3
11 to 15 years	31.3	17.2	21.2	18.8	18.1	16.4	20.4	21.0	20.7
16 to 20 years	16.2	19.0	16.9	17.7	15.9	18.8	15.8	12.9	18.6
21 to 25 years	7.3	17.1	13.7	13.6	14.7	20.9	12.8	11.8	12.6
26 to 30 years	2.1	13.5	8.3	10.9	9.8	13.0	8.0	9.8	9.2
31 to 35 years	1.2	6.4	3.6	4.4	6.7	5.5	2.7	4.5	4.5
36 to 40 years	0.2	5.4	2.9	3.6	6.0	4.4	2.5	3.9	3.8
41 years and over	0.2	2.8	1.4	2.4	2.6	2.8	1.1	1.8	1.3
Median years	11.3	19.1	14.3	15.6	16.7	19.4	13.4	14.0	15.0

- Represents zero.

Note: Detail may not add to total because of rounding.

Source: Table 5.

THE SAMPLE

The 1976 National Survey of Natural and Social Scientists and Engineers was the third survey based on the 1970 population of scientists and engineers to be conducted by the Bureau of the Census for the National Science Foundation. The first survey, the 1972 Professional, Technical, and Scientific Manpower Survey,[19] was conducted among a nationwide sample of approximately 150,000 persons who were recorded in the 1970 Census of Population as being in the experienced civilian labor force in one of 65 engineering, scientific, or related occupations. The survey also included a small sample of persons who had completed 4 or more years of college but were not in any of the specified occupations. Based on responses in the 1972 survey and on criteria established by the National Science Foundation, approximately 50,000 persons from the 1972 survey sample (excluding the small sample of college graduates) were chosen as the sample for the series of longitudinal surveys known as the National Sample of Scientists and Engineers.[20] The 1976 National Survey of Natural and Social Scientists and Engineers was the second survey in this longitudinal series; the 1974 National Survey of Scientists and Engineers was the first.[21]

Questionnaires for the 1976 survey were mailed in February 1976. The final result of all data collection activities was that completed questionnaires were obtained for 85.1 percent of the sample, approximately 42,650 persons. The 14.9 percent for whom completed questionnaires were not received includes persons who refused to participate, the deceased, and persons who returned questionnaires with insufficient information to permit processing.[22]

For each sample case for which a completed questionnaire was obtained, the information from the 1976 survey was matched with the 1974 and 1972 survey data and the 1970 census data for the same person. Weights applied to sample cases in the 1972 survey were then used to weight the resultant matched data file. The use of the 1972 survey weights means that no adjustment for nonresponse was made to the 1976 survey results. Therefore, the 1976 estimates understate the characteristics being estimated for the 1972 survey population. This understatement varies to the extent that the 1976 noninterview rate varies for population subgroups.[23] An accounting for the nonresponses in 1976 by age, sex, and field of science or engineering in 1974 is shown in table 1.

Respondents to the 1976 National Survey of Natural and Social Scientists and Engineers were classified, again based

[19] For a description of the 1972 survey and related matters, see U.S. Bureau of the Census, **Characteristics of Persons in Engineering and Scientific Occupations: 1972**, Technical Paper No. 33, U.S. Government Printing Office, Washington, D.C., 1974.

[20] Results from the 1974 survey were published in U.S. Bureau of the Census, **Current Population Reports**, Special Studies, Series P-23, No. 53, "Selected Characteristics of Persons in Fields of Science or Engineering: 1974," U.S. Government Printing Office, Washington, D.C., 1975.

[21] For a description of the selection process, see appendix D.

[22] For an analysis of response, see appendix E.

[23] For a more complete discussion of the weighting and estimating procedures, see appendix A.

on criteria of the National Science Foundation, into 1 of 17 detailed fields of science and engineering in 1976 or into the category "not in a field of science or engineering in 1976." Except for table 1, the tables of this report are based exclusively on the characteristics of members of the universe represented by these respondents. Because the data in this report are based on a sample survey, they are subject to both sampling and nonsampling errors. The tables in appendix A present the standard errors of the totals and percentages for each of the 17 detailed and 8 major fields of science or engineering and for the category "not in a field of science or engineering in 1976."

THE QUESTIONNAIRE

Each panel member in the 1976 National Survey of Natural and Social Scientists and Engineers was asked to complete by self-enumeration a four-page questionnaire (reproduced in appendix B). A cover letter was printed on page one of the questionnaire, and a set of reference lists (also reproduced in appendix B) was attached to the questionnaire. The reference lists were used by respondents to self-code answers to inquiries on major field of study (question 1 of the questionnaire), kind of business (question 7), occupation (question 8), and professional identification (question 19).

DEFINITIONS AND EXPLANATIONS

The definitions for many of the characteristics shown in this report are self-explanatory or can best be understood by reference to the appropriate questionnaire items (see appendix C) or the reference lists in appendix B. An explanation of the other subjects is provided below.

Fields of science and engineering. Science or engineering (S/E) fields are categories established by the survey sponsor, the National Science Foundation, to identify persons who could be classified as engineers or scientists under most definitions. In general, to be classified into one of the fields, a person had to have at least two of the following three characteristics: (1) employment in the field, (2) attainment of a specified educational level in an academic discipline related to the field, or (3) self-identification, based upon total education and experience, as being in the field. More detailed information on the criteria for membership in a scientific and technical field is given in appendix D.

The major fields of science and engineering for which data are presented in this report and the detailed fields they comprise are as follows:

- Computer specialists
- Engineers
- Mathematical specialists
  - Mathematicians
  - Statisticians
- Life scientists
  - Agricultural scientists
  - Biologists
  - Medical scientists
- Physical scientists
  - Chemists
  - Physicists and astronomers
  - Other physical scientists
- Environmental scientists
  - Earth scientists
  - Atmospheric scientists
  - Oceanographers
- Psychologists
- Social Scientists
  - Economists
  - Sociologists and anthropologists
  - Other social scientists

Age in 1976. The reference period for age in 1976 was April 1976. The age classification is based on the age of the person at his or her last birthday. The median age is that age that divides the distribution into two equal parts, one-half being older than the median age and one-half younger. Median ages were derived from an estimation process that distributed the subject populations into the 5-year age groups given in table 1.

Race. The data on race are based on responses in the 1970 Census of Population. The "other races" category includes all races not included in the specific categories listed.

Divisions of the United States. The divisions of the United States shown in table 2 comprise the following States:

New England: Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont

Middle Atlantic: New York, New Jersey, Pennsylvania

East North Central: Illinois, Indiana, Michigan, Ohio, Wisconsin

West North Central: Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota

South Atlantic: Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, West Virginia

East South Central: Alabama, Kentucky, Mississippi, Tennessee

West South Central: Arkansas, Louisiana, Oklahoma, Texas

Mountain: Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Wyoming

Pacific: Alaska, California, Hawaii, Oregon, Washington

Outlying areas of the United States include Puerto Rico, Guam, Virgin Islands, American Samoa, and Canal Zone.

Standard Metropolitan Statistical Areas (SMSA). In general, a standard metropolitan statistical area is a county or group of contiguous counties which contains at least one city of 50,000 inhabitants or more, or twin cities with a combined

population of at least 50,000. The data in this report are restricted to SMSA boundaries as defined for the 1970 Census of Population. For more information, see 1970 Census of Population, Volume 1, **Characteristics of the Population**, Part 1, United States Summary.

Highest degree held. Highest degree held in 1976 refers to the highest academic degree awarded to the respondent in 1975 or earlier. Data on highest degree held were derived as follows: The level and the year of award of the highest degree received by the respondent between January 1972 and the beginning of 1976 (this degree will be referred to as degree "A") were compared with the level and year of award, determined from either the 1974 or 1972 survey, of the previously-designated highest degree held by the respondent (this degree is referred to as degree "B"). If degree "A" was at the same level or at a higher level than degree "B," and if its date of award was later than that of degree "B," degree "A" was designated as the highest degree held in 1976; otherwise, the degree "B" was designated as the highest degree held in 1976.[24]

The "other degree" category includes persons whose highest academic degree was one of the following: RN, LLB, MD, and academic degrees other than those shown in table 3.

Except for engineers, the criteria for the science or engineering fields required that a person possess an academic degree at the bachelor's level or higher. In table 3, therefore, only engineers and persons not in a field of science or engineering in 1976 appear in the "associate degree" and "no degree" categories.

Major field of study for highest degree held. The data on major field of study refer to the major subject associated with the highest degree held in 1976 as determined by the method described above. For persons whose highest degree held in 1976 was received after January 1972, the data are derived from question 1, part b of the 1976 questionnaire or from question 2, part b5 of the 1974 questionnaire. For persons whose highest degree was awarded in 1971 or earlier, the data on major subject are based on the 1972 survey.

Employment status. Employed persons are those who reported that they were employed, either full time or part time, or on postdoctoral appointment during the reference week (February 8-14, 1976 or February 9-15, 1975). If a person did not report whether he or she was employed or on postdoctoral appointment, but the dates of his or her most recent job included February 1976 (or 1975), he or she was also considered employed. The unemployed are persons who marked the "unemployed and seeking work" category (box 4) of item 3a of the 1976 questionnaire. All other persons were classified as "not in the labor force" or as "labor force status not reported."

The statistics on employment status in February 1976 are not strictly comparable with those for February 1975. The editing rules for the 1976 survey rejected the questionnaire of any person who failed to report employment status in 1976, but did permit the respondent to leave status in 1975 unreported. Therefore, the data on employment status in 1975 have a category "employment status not reported," which does not appear for the data on status in 1976.

Unemployment in 1975. The data on unemployment in 1975 relate to the occurrence of unemployment during the entire calendar year, rather than just during the reference week.

Primary work activity in 1976. The data on primary work activity in 1976 were derived, in general, from answers to question 10 of the 1976 questionnaire. In certain instances of nonresponse to question 10, however, the data were derived from an imputation procedure that used responses to question 11.

Type of employer. The data on type of employer in 1976 are based on entirely on responses to question 12 of the 1976 questionnaire.

Basic annual salary rate. The statistics on salary refer to the basic annual salary associated with the job held in February 1976. The figures relate to salary before deductions for income tax, social security, retirement, etc., but do not include bonuses, overtime pay, or earnings from secondary jobs. For employees of educational institutions whose salary was for 9 or 10 months, the salary rate was adjusted to a 12-month basis. Median salaries were derived by an estimation process that distributed the subject populations into $1,000 intervals.

Computation of constant dollar figures. The adjustment for price changes between 1974 and 1976 was made by converting the median basic annual salaries for each period into 1975 dollars on the basis of the change in the Consumer Price Index. The index figure for 1975 of 161.2 (1967=100) was applied to the basic annual salaries in 1976 of Table L, and the index figure for 1973 or 133.1 (1967=100) was applied to the basic annual salaries in 1974. The 1974 medians in current dollars were then multiplied by the factor 1.21 (i.e. 161.2÷133.1) that represented the change in the price index between the two periods (1975=100). The constant dollar figures, for a number of reasons, are to be regarded as approximations. For further information, see U.S. Bureau of the Census, **Current Population Reports**, Series P-60, Number 104, pps. 76 and 77.

Job mobility in 1975 and 1976. Persons who reported being employed in February 1976 and in February 1975 in the 1976 survey were classified in the "job change between 1975 and 1976" category if they reported different jobs in Part

[24] After the data in tables 1-5 were tabulated, an error was discovered in the computer program that made the highest degree held in 1976 determinations. In short, the program incorrectly assigned "1976" as the year of award of the highest degree entered in item 1b of the 1976 questionnaire when the respondent indicated that he or she had not been awarded this degree by marking the "none" box in the "year degree was awarded or will be awarded" section. The influence of this error on the data of this report was negligible and did not justify their recalculation. For a fuller discussion of the problem and of its effect on the published data, see appendix G.

III of the questionnaire. Then, the detailed occupation of the 1976 job was compared with the detailed occupation of the 1975 job, and persons were classified as with same or different occupations or as "occupation change not reported."

Job mobility in 1974 and 1976. The data on job mobility between 1974 and 1976 were derived from answers on both the 1974 and 1976 questionnaires. Persons were classified as with a "job change between 1974 and 1976," if they were employed in both 1974 and 1976 and reported in the 1976 survey that their current job began in 1974 or later. Persons were classified as "same job in 1974 and 1976" if the beginning date of their most recent job was in 1973 or earlier, and as "not reported" if they did not report the beginning date of the job.

Job mobility in 1972 and 1976. The data on job mobility between 1972 and 1976 were derived from answers on both the 1972 and 1976 questionnaires. Persons were classified as "job change between 1972 and 1976," if they were employed in both 1972 and 1976 and reported in the 1976 survey that the beginning date of their current job was in 1972 or later. Persons were classified as "same job in 1972 and 1976," if the beginning date of this job was in 1971 or earlier, and as "not reported" if they did not report the beginning date of the job.

Table 1. FIELD OF SCIENCE OR ENGINEERING IN 1976 OF PERSONS IN THE NATIONAL SAMPLE

(Detail may not add to total because of rounding.

Line No.	Sex, age in 1976, and field in 1974	Total, National Sample of Scientists and Engineers	Field of science or engineering in 1976								
			Computer specialists	Engineers	Mathematical specialists			Life scientists			
					Total	Mathematicians	Statisticians	Total	Agricultural scientists	Biologists	Medical scientists
1	Total persons	1,400,143	50,691	658,549	24,831	17,873	6,958	70,027	26,315	33,975	9,738
2	Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
3	Male	94.4	87.6	99.6	86.5	87.7	83.3	87.5	99.6	82.2	72.8
4	Female	5.6	12.4	0.4	13.5	12.3	16.7	12.5	0.4	17.8	27.2
5	Under 30 years	5.5	8.6	4.5	4.7	5.2	3.6	4.6	3.4	6.1	2.6
6	30 to 34 years	16.3	31.9	12.6	22.6	23.3	20.7	16.0	11.7	19.5	15.2
7	35 to 39 years	17.0	25.3	15.5	19.6	20.8	16.6	17.9	17.1	18.9	16.4
8	40 to 44 years	15.1	16.3	15.0	14.9	14.9	14.8	15.8	16.9	14.5	17.4
9	45 to 49 years	14.3	9.8	15.6	14.8	15.5	13.2	14.1	15.7	13.8	11.2
10	50 to 54 years	13.0	4.8	15.4	8.0	7.0	10.4	12.2	14.9	10.4	11.5
11	55 to 59 years	8.3	2.3	9.5	6.4	6.0	7.5	8.8	9.2	7.5	12.6
12	60 to 64 years	5.4	0.7	6.1	4.8	3.7	7.7	5.8	6.0	5.0	7.7
13	65 to 69 years	3.2	0.2	3.7	3.3	2.8	4.6	3.1	3.5	2.5	4.5
14	70 and over	1.8	0.1	2.1	0.9	0.8	1.0	1.7	1.6	2.0	0.9
15	Median age (years)	43.7	36.9	45.8	41.0	40.2	43.1	43.7	45.3	41.9	44.5
	FIELD OF SCIENCE OR ENGINEERING IN 1974										
16	Total persons	1,400,143	50,691	658,549	24,831	17,873	6,958	70,027	26,315	33,975	9,738
17	Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
18	Computer specialists	3.9	73.1	0.5	3.9	5.0	1.0	(Z)	(Z)	-	-
19	Engineers	49.1	7.7	89.4	3.2	3.0	3.5	0.7	0.4	1.0	0.7
20	Mathematical specialists	2.0	1.9	0.1	81.9	80.5	85.5	0.1	-	0.1	0.3
21	Mathematicians	1.4	1.8	0.1	58.2	79.9	2.6	(Z)	-	(Z)	-
22	Statisticians	0.6	(Z)	(Z)	23.7	0.7	82.9	0.1	-	0.1	0.3
23	Life scientists	5.4	-	0.1	0.1	-	0.4	85.4	87.9	85.8	77.0
24	Agricultural scientists	2.1	-	(Z)	-	-	-	33.1	82.5	4.4	0.3
25	Biologists	2.6	(Z)	(Z)	(Z)	-	0.2	41.8	5.2	78.0	13.9
26	Medical scientists	0.8	-	(Z)	0.1	-	0.2	10.5	0.2	3.4	62.8
27	Physical scientists	8.8	1.0	0.6	0.4	0.6	-	2.5	0.7	3.5	3.4
28	Chemists	6.2	0.3	0.3	0.3	0.4	-	2.2	0.6	3.2	2.7
29	Physicists and astronomers	2.0	0.6	0.2	0.1	0.1	-	0.1	-	0.2	0.3
30	Other physical scientists	0.4	0.1	0.1	0.1	0.1	-	0.2	0.1	0.1	0.4
31	Environmental scientists	2.1	0.1	0.1	-	-	-	0.5	0.9	0.3	-
32	Earth scientists	1.8	0.1	0.1	-	-	-	0.3	0.8	(Z)	-
33	Atmospheric scientists	0.2	0.1	(Z)	-	-	-	(Z)	(Z)	-	-
34	Oceanographers	0.1	-	(Z)	-	-	-	0.1	-	0.3	-
35	Psychologists	2.5	(Z)	(Z)	-	-	-	0.4	-	0.1	2.0
36	Social scientists	3.4	0.2	0.1	0.9	0.3	2.5	0.2	0.3	-	0.3
37	Economists	1.4	0.1	(Z)	0.7	0.1	2.3	0.1	0.3	-	-
38	Sociologists and anthropologists	0.8	(Z)	-	-	-	-	(Z)	-	-	0.1
39	Other social scientists	1.2	0.1	(Z)	0.2	0.2	0.2	(Z)	(Z)	-	0.1
40	Not in a field in 1974	10.6	12.7	4.6	6.4	6.8	5.5	7.1	7.0	5.6	12.8
41	Did not report in 1974	12.3	3.1	4.5	3.2	3.9	1.6	3.3	2.7	3.6	3.6

OF SCIENTISTS AND ENGINEERS, BY FIELD OF SCIENCE OR ENGINEERING IN 1974, AGE IN 1976, AND SEX

For meaning of symbols, see text)

Field of science or engineering in 1976--Continued															Line No.
Physical scientists				Environmental scientists				Psychologists	Social scientists				Not in a field of science or engineering in 1976	Did not report in 1976	
Total	Chemists	Physicists and astronomers	Other physical scientists	Total	Earth scientists	Atmospheric scientists	Oceanographers		Total	Economists	Sociologists and anthropologists	Other social scientists			
117,043	83,788	27,502	5,754	26,997	22,370	3,223	1,404	34,186	45,582	17,726	10,309	17,546	157,559	214,677	1
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	2
92.5	90.6	97.6	96.0	96.8	96.5	97.6	100.0	72.3	81.1	91.1	75.9	74.1	91.3	92.6	3
7.5	9.4	2.4	4.0	3.2	3.5	2.4	-	27.7	18.9	8.9	24.1	25.9	8.7	7.4	4
4.1	3.7	5.2	4.5	4.0	4.2	1.2	6.2	5.6	4.1	2.9	3.3	5.8	7.1	8.2	5
15.9	15.7	16.9	15.3	10.0	9.2	11.4	19.9	20.9	21.8	17.9	24.6	24.1	19.2	20.0	6
17.8	15.9	23.2	19.6	13.3	12.4	11.1	32.9	17.3	15.5	14.6	17.2	15.4	16.9	19.4	7
15.2	14.7	16.4	16.4	18.9	19.4	18.2	11.9	13.7	12.6	11.9	13.5	12.8	16.1	14.6	8
13.6	13.5	13.7	15.3	19.0	20.3	13.9	10.3	14.6	12.6	12.2	12.9	12.8	13.3	12.4	9
12.6	13.5	10.0	11.9	14.0	14.6	13.7	4.2	13.0	11.6	15.0	10.9	8.5	11.2	10.1	10
9.1	10.4	5.3	9.8	10.6	9.2	21.5	7.0	6.6	8.9	9.0	8.4	9.1	7.7	6.1	11
6.4	6.9	5.2	4.4	5.5	5.3	7.8	3.3	4.1	5.9	6.5	5.1	5.6	5.0	4.3	12
3.4	3.8	2.4	2.3	3.8	4.4	0.7	1.7	2.4	4.2	5.5	2.5	3.8	2.5	2.7	13
1.8	1.9	1.8	0.5	1.0	0.9	0.4	2.6	1.8	2.9	4.5	1.5	2.1	1.0	2.2	14
44.0	45.0	41.4	43.3	46.0	46.2	47.9	38.6	42.3	43.4	46.1	41.8	41.8	42.1	40.8	15
117,043	83,788	27,502	5,754	26,997	22,370	3,223	1,404	34,186	45,582	17,726	10,309	17,546	157,559	214,677	16
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	17
0.2	0.1	0.4	0.6	0.1	0.2	-	-	0.6	0.5	0.6	0.5	0.4	5.5	2.2	18
3.4	2.2	6.0	8.8	1.9	1.8	1.2	4.8	0.6	1.2	1.7	-	1.4	23.6	24.0	19
0.1	-	0.2	-	(Z)	0.1	-	-	0.1	0.3	0.5	0.4	-	1.9	1.1	20
0.1	-	0.2	-	(Z)	0.1	-	-	-	-	-	-	-	1.4	0.8	21
-	-	-	-	-	-	-	-	0.1	0.3	0.5	0.4	-	0.6	0.2	22
1.7	2.0	0.3	5.3	0.6	0.7	-	-	0.5	0.5	0.5	0.7	0.4	4.5	2.6	23
0.3	0.2	-	2.9	0.6	0.7	-	-	-	0.2	0.4	-	0.1	1.7	1.1	24
1.2	1.4	0.1	2.0	-	-	-	-	0.2	0.1	-	0.1	0.3	1.6	1.1	25
0.3	0.3	0.3	0.4	-	-	-	-	0.3	0.2	0.1	0.6	0.1	1.2	0.4	26
86.2	89.1	81.6	67.3	3.1	2.9	4.8	2.6	-	0.2	0.2	-	0.2	3.6	3.2	27
63.9	88.6	0.6	6.6	0.3	0.3	0.4	-	-	-	-	-	-	2.5	2.3	28
18.9	0.2	77.5	12.7	1.6	1.1	2.9	1.6	-	0.1	0.2	-	0.1	0.9	0.8	29
3.4	0.3	3.5	48.1	1.4	1.4	1.5	1.0	-	0.1	-	-	0.2	0.3	0.1	30
0.6	0.1	0.6	8.6	88.5	88.4	90.3	86.2	-	0.5	-	-	1.3	0.6	1.1	31
0.5	0.1	0.2	8.3	73.5	88.1	3.3	2.4	-	0.4	-	-	1.1	0.6	0.9	32
0.1	-	0.4	0.2	10.3	0.1	85.2	-	-	0.1	-	-	0.2	(Z)	0.1	33
(Z)	(Z)	-	0.2	4.7	0.2	1.8	83.8	-	-	-	-	-	(Z)	(Z)	34
-	-	-	-	-	-	-	-	96.8	0.6	-	0.1	1.6	1.1	1.3	35
(Z)	(Z)	-	0.2	0.2	0.2	-	-	1.3	78.4	82.0	86.6	69.3	4.6	1.7	36
-	-	-	-	-	-	-	-	-	32.6	81.0	0.1	2.8	1.6	0.9	37
-	-	-	-	-	-	-	-	-	20.4	-	85.2	2.9	0.7	0.3	38
(Z)	(Z)	-	0.2	0.2	0.2	-	-	1.3	25.2	1.0	1.3	63.6	2.2	0.6	39
3.7	3.3	4.1	7.6	2.7	2.9	2.3	0.9	5.8	12.9	9.5	7.8	19.3	49.2	6.7	40
4.0	3.3	6.8	1.5	2.8	2.8	1.5	5.6	4.5	5.1	4.9	4.0	6.1	5.3	56.2	41

Table 2. SELECTED SOCIAL CHARACTERISTICS

(Detail may not add to total because of rounding.

Line No.	Selected social characteristics	Field of science or engineering in 1976								
				Mathematical specialists			Life scientists			
		Computer specialists	Engineers	Total	Mathematicians	Statisticians	Total	Agricultural scientists	Biologists	Medical scientists
	RACE									
1	All races	50,691	658,549	24,831	17,873	6,958	70,027	26,315	33,975	9,738
2	Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
3	White	96.3	96.7	93.2	93.7	92.1	96.2	98.6	94.4	96.0
4	Black	1.6	0.7	3.8	4.2	2.7	1.4	0.4	2.3	1.3
5	Japanese, Chinese, or Korean	1.3	2.2	2.5	1.8	4.2	1.7	0.8	2.6	1.4
6	All other races	0.8	0.5	0.5	0.3	1.1	0.7	0.2	0.8	1.3
	RESIDENCE IN 1976									
7	Total persons	50,691	658,549	24,831	17,873	6,958	70,027	26,315	33,975	9,738
8	Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
9	United States	99.2	99.3	98.8	99.2	97.8	99.1	99.6	98.6	99.7
10	Northeast	31.7	26.5	22.5	21.3	25.7	18.6	9.4	21.8	31.9
11	New England	8.0	7.9	5.8	6.3	4.7	5.4	3.3	6.1	8.4
12	Middle Atlantic	23.6	18.6	16.7	15.0	21.0	13.2	6.1	15.7	23.5
13	North Central	19.7	23.5	20.8	21.5	19.0	26.0	25.4	27.7	21.6
14	East North Central	14.7	17.6	15.9	16.8	13.6	16.2	12.2	19.5	15.0
15	West North Central	5.0	5.8	4.9	4.7	5.4	9.8	13.1	8.2	6.6
16	South	27.8	26.1	36.7	34.5	42.2	30.6	34.7	28.0	28.7
17	South Atlantic	16.5	13.2	24.1	21.3	31.4	16.6	17.0	16.2	17.0
18	East South Central	3.3	4.1	3.9	4.3	2.9	5.7	7.8	4.4	4.9
19	West South Central	8.1	8.8	8.7	9.0	7.9	8.3	9.9	7.4	6.8
20	West	19.9	23.2	19.8	21.8	11.0	24.0	30.0	21.1	17.6
21	Mountain	3.2	4.8	5.8	6.9	2.9	7.0	11.4	4.9	2.7
22	Pacific	16.7	18.4	13.0	15.0	8.1	16.9	18.7	16.2	14.9
23	Outlying areas of the United States	0.1	(Z)	-	-	-	(Z)	0.1	(Z)	-
24	Foreign country	0.8	0.7	1.2	0.8	2.2	0.8	0.3	1.4	0.3
25	Not reported	-	-	-	-	-	-	-	-	-
	SELECTED SMSA'S OF RESIDENCE IN 1976									
26	Total persons	50,691	658,549	24,831	17,873	6,958	70,027	26,315	33,975	9,738
27	Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
28	Metropolitan areas	85.1	81.1	75.9	73.3	82.6	57.4	39.2	64.6	82.4
29	Anaheim-Santa Ana-Garden Grove, Calif	1.6	2.0	0.8	1.1	0.3	0.9	0.2	1.2	1.8
30	Los Angeles-Long Beach, Calif	4.9	4.9	2.4	2.8	1.4	1.8	0.2	2.2	4.9
31	San Diego, Calif	1.1	0.9	0.8	0.9	0.6	0.7	(Z)	1.4	0.1
32	San Francisco-Oakland, Calif	2.2	2.0	1.6	1.4	2.2	2.4	1.5	2.7	3.4
33	San Jose, Calif	2.2	1.8	1.3	1.8	-	0.8	0.5	0.9	1.0
34	Denver, Colo	0.6	1.3	0.9	1.1	0.3	0.7	0.8	0.7	0.6
35	Washington, D.C.-Md.-Va	6.0	3.1	11.4	7.3	21.9	3.9	2.8	4.2	6.2
36	Atlanta, Ga	1.3	0.7	0.5	0.4	0.7	0.6	0.3	0.5	1.4
37	Chicago, Ill	4.2	3.3	3.2	2.4	5.2	2.6	0.9	3.1	5.4
38	New Orleans, La	0.4	0.7	0.2	0.2	0.2	0.3	-	0.4	0.7
39	Baltimore, Md	1.3	1.7	2.0	2.5	0.6	0.8	0.1	1.1	1.9
40	Boston, Mass	2.8	2.3	1.8	1.7	2.1	0.9	-	1.3	2.1
41	Detroit, Mich	1.7	2.2	1.4	1.6	1.0	0.6	(Z)	1.0	0.6
42	Minneapolis-St. Paul, Minn	1.1	1.5	0.7	0.5	1.1	1.4	2.0	0.8	1.8
43	St. Louis, Mo.-Ill	0.9	1.3	0.9	1.0	0.5	0.4	0.1	0.7	0.5
44	Newark, N.J	1.8	1.6	1.1	0.5	2.7	0.9	0.1	1.5	1.3
45	Paterson-Clifton-Passaic, N.J	0.9	0.9	0.5	0.1	1.3	0.6	(Z)	1.1	0.3
46	New York, N.Y	4.5	3.2	4.2	4.5	3.3	3.3	0.6	3.4	10.2
47	Rochester, N.Y	1.0	0.8	1.1	0.9	1.7	0.3	(Z)	0.3	0.7
48	Cincinnati, Ohio-Ky.-Ind	0.9	0.9	0.8	0.9	0.6	0.7	0.4	1.1	0.6
49	Cleveland, Ohio	0.8	1.1	0.3	0.4	-	0.6	0.1	0.8	1.1
50	Philadelphia, Pa.-N.J	2.6	3.3	1.8	1.9	1.7	1.7	0.4	2.2	3.6
51	Pittsburgh, Pa	1.5	1.8	0.8	0.9	0.5	0.4	0.2	0.6	0.7
52	Dallas, Texas	1.5	1.1	1.5	1.7	1.2	0.3	0.1	0.4	0.5
53	Houston, Texas	2.2	2.2	1.4	1.3	1.4	0.6	0.1	0.8	1.2
54	Seattle-Everett, Wash	1.8	1.9	1.0	1.0	1.0	0.5	0.4	0.7	0.4
55	Other metropolitan areas	31.0	33.0	31.6	32.5	29.1	28.7	27.3	29.5	29.6
56	Nonmetropolitan areas	14.0	18.1	22.8	25.8	15.2	41.6	60.2	34.1	17.3
57	Outlying areas of the United States or foreign countries	0.8	0.7	1.2	0.8	2.2	0.9	0.4	1.4	0.3
58	Not reported	0.1	0.1	(Z)	0.1	-	0.1	0.1	0.2	-

BY FIELD OF SCIENCE OR ENGINEERING: 1976

For meaning of symbols, see text)

Field of science or engineering in 1976--Continued														
Physical scientists				Environmental scientists				Psychologists	Social scientists				Not in a field of science or engineering in 1976	Line No.
Total	Chemists	Physicists and astronomers	Other physical scientists	Total	Earth scientists	Atmospheric scientists	Oceanographers		Total	Economists	Sociologists and anthropologists	Other social scientists		
117,043	83,788	27,502	5,754	26,997	22,370	3,223	1,404	34,186	45,582	17,726	10,309	17,546	157,559	1
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	2
94.3	93.7	95.6	96.2	98.1	98.4	98.5	91.8	97.9	96.0	95.9	95.9	96.0	96.5	3
1.6	2.0	0.4	1.1	0.1	-	0.4	1.9	1.6	1.7	1.4	2.4	1.7	1.4	4
3.3	3.3	3.7	2.7	1.4	1.1	1.1	6.3	0.2	1.6	2.0	1.6	1.3	1.6	5
0.8	1.0	0.3	-	0.4	0.4	-	-	0.2	0.7	0.8	-	1.0	0.5	6
117,043	83,788	27,502	5,754	26,997	22,370	3,223	1,404	34,186	45,582	17,726	10,309	17,546	157,559	7
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	8
99.0	99.3	98.1	97.6	97.7	97.3	100.0	98.2	99.1	98.4	98.4	98.0	98.6	99.3	9
30.7	31.4	29.2	28.1	10.1	8.6	16.4	20.8	31.9	26.2	23.3	29.7	26.9	28.1	10
7.3	6.7	9.0	8.7	4.3	2.8	7.8	19.1	7.6	6.7	5.2	10.1	6.3	8.7	11
23.4	24.7	20.2	19.4	5.9	5.7	8.6	1.7	24.3	19.4	18.2	19.7	20.6	19.4	12
23.8	27.1	15.3	16.6	10.2	10.1	14.7	1.1	24.6	22.8	21.4	24.5	23.1	26.0	13
10.3	10.8	11.8	14.2	6.2	6.3	8.0	1.1	17.8	15.7	14.7	17.7	15.6	18.6	14
5.5	6.3	3.5	2.4	3.9	3.8	6.7	-	6.8	7.0	6.6	6.9	7.5	7.4	15
25.8	26.1	23.9	30.5	45.5	45.8	42.5	46.4	22.1	30.6	39.5	21.7	26.8	25.9	16
15.6	14.9	15.6	23.4	22.5	8.9	26.1	38.4	12.7	22.7	29.6	14.7	20.3	14.6	17
3.5	3.7	3.0	2.5	2.7	2.8	2.9	1.7	3.2	3.4	4.5	2.6	2.8	3.9	18
6.7	7.4	5.3	2.6	30.2	34.2	13.5	6.3	6.2	4.5	5.4	4.4	3.7	7.4	19
18.7	14.8	29.8	22.5	32.0	32.9	26.4	29.8	20.6	18.9	14.2	22.0	21.7	19.3	20
5.1	3.8	8.2	9.3	16.9	19.0	10.0	-	4.4	4.7	4.2	7.1	3.8	3.8	21
13.6	11.0	21.5	13.2	15.0	13.9	16.4	29.8	16.2	14.2	10.0	14.9	18.0	15.5	22
(Z)	(Z)	(Z)	-	0.1	0.1	-	0.9	(Z)	-	-	-	-	0.2	23
1.0	0.6	1.8	2.4	2.2	2.6	-	0.9	0.8	1.6	1.6	2.0	1.4	0.5	24
-	-	-	-	-	-	-	-	-	-	-	-	-	-	25
117,043	83,788	27,502	5,754	26,997	22,370	3,223	1,404	34,186	45,582	17,726	10,309	17,546	157,559	26
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	27
78.5	78.5	78.8	77.3	77.4	77.4	81.7	66.7	80.1	77.4	80.8	72.1	77.2	78.6	28
1.1	1.0	1.2	1.1	1.1	1.4	-	-	1.6	0.6	0.1	0.4	1.3	1.5	29
2.8	2.3	4.6	2.2	4.1	4.2	3.7	4.1	3.5	2.4	1.7	1.8	3.4	3.6	30
1.2	0.5	3.1	1.9	1.1	0.4	-	14.5	1.3	0.8	0.2	1.1	1.2	0.7	31
3.1	2.6	4.9	1.9	2.5	2.7	2.6	-	2.1	3.6	2.6	2.1	5.5	2.4	32
1.3	0.8	2.6	2.8	1.1	1.2	1.1	-	1.3	0.5	0.4	0.5	0.7	1.4	33
1.0	0.8	1.1	3.1	7.6	8.7	3.4	-	0.9	0.8	0.7	1.6	0.5	0.9	34
4.3	2.7	7.7	10.3	6.3	4.4	14.1	18.7	4.5	13.0	21.1	4.1	9.9	3.5	35
0.5	0.5	0.4	0.5	0.2	0.1	0.8	-	0.7	0.7	0.6	1.1	0.5	1.0	36
3.9	4.6	1.9	3.3	0.8	0.8	1.5	-	4.2	2.2	2.1	3.3	1.6	4.3	37
0.5	0.5	0.4	-	3.4	4.0	0.4	0.8	0.2	0.3	0.5	0.4	0.1	0.3	38
1.6	1.4	2.1	1.3	0.5	0.4	0.4	2.4	1.2	1.0	1.5	0.3	0.8	1.1	39
2.7	1.8	4.9	4.7	1.4	1.0	5.1	-	2.2	1.7	1.7	2.4	1.3	2.4	40
1.3	1.4	1.1	1.2	0.3	0.3	0.8	-	0.9	0.8	1.3	0.2	0.5	1.8	41
1.5	1.8	0.7	0.8	0.4	0.5	0.4	-	1.1	1.5	1.6	0.7	1.9	1.7	42
1.0	1.2	0.6	0.2	0.3	0.3	0.8	-	0.9	0.7	0.6	0.6	0.7	1.4	43
2.5	3.0	1.2	2.2	0.3	0.3	0.4	-	0.9	0.5	0.7	0.4	0.3	1.2	44
1.3	1.5	0.7	0.6	-	-	-	-	0.6	1.0	1.5	0.6	0.8	1.6	45
3.9	3.6	5.0	3.6	1.4	1.2	2.6	0.8	8.1	6.8	7.7	5.8	6.5	5.3	46
1.7	1.8	1.6	1.6	-	-	-	-	0.7	0.2	0.1	0.3	0.3	0.6	47
1.0	1.3	0.1	0.4	0.1	0.2	-	-	0.7	0.6	1.4	0.1	0.2	0.7	48
1.0	1.2	0.4	0.2	0.1	-	1.2	-	1.2	0.5	0.5	1.0	0.3	1.0	49
3.6	4.5	1.8	0.7	0.5	0.5	0.8	-	4.2	2.7	1.5	3.3	3.6	3.2	50
1.3	1.4	1.2	1.5	1.5	1.8	-	-	1.7	1.0	1.8	0.5	0.4	0.9	51
0.8	0.8	0.9	0.4	3.9	3.4	8.7	-	1.2	0.4	0.6	0.4	0.1	1.5	52
1.3	1.4	1.1	0.8	9.0	10.8	0.7	-	1.1	0.7	1.1	1.0	0.1	1.7	53
0.5	0.5	0.6	0.4	0.5	0.2	0.8	3.6	0.6	1.1	0.2	1.3	2.0	1.3	54
31.8	33.5	27.1	29.6	28.8	28.8	31.5	21.8	32.6	31.4	26.9	36.8	32.7	31.6	55
20.3	20.7	19.3	20.1	20.3	19.9	17.9	31.6	18.8	20.9	17.7	25.7	21.4	20.5	56
1.0	0.7	1.9	2.4	2.3	2.7	-	1.8	0.9	1.6	1.6	2.0	1.4	0.7	57
0.1	0.1	0.1	0.2	(Z)	-	0.4	-	0.2	0.1	-	0.1	0.1	0.2	58

Table 3. SELECTED EDUCATIONAL CHARACTERISTICS

(Detail may not add to total because of rounding.

Line No.	Selected educational characteristics	Field of science or engineering in 1976								
				Mathematical specialists			Life scientists			
		Computer specialists	Engineers	Total	Mathematicians	Statisticians	Total	Agricultural scientists	Biologists	Medical scientists
	HIGHEST DEGREE HELD									
1	Total persons	50,691	658,549	24,831	17,873	6,958	70,027	26,315	33,975	9,738
2	Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
3	With a degree	100.0	97.4	100.0	100.0	100.0	100.0	100.0	100.0	100.0
4	Associate	-	1.5	-	-	-	-	-	-	-
5	Bachelor's	62.2	68.1	28.6	25.7	36.1	30.4	54.0	15.8	17.6
6	Master's	30.6	22.3	30.1	30.7	29.9	22.2	20.0	24.3	21.1
7	Doctorate	7.0	5.3	40.7	43.1	33.2	45.6	25.8	59.5	50.6
8	Other degree	0.2	0.2	0.5	0.4	0.8	1.8	0.1	0.4	10.8
9	No degree	-	2.6	-	-	-	-	-	-	-
	MAJOR FIELD OF STUDY FOR HIGHEST DEGREE HELD									
10	Total, with a degree	50,691	641,226	24,831	17,873	6,958	70,027	26,315	33,975	9,738
11	Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
12	Computer science and systems analysis	13.0	0.2	0.7	0.8	0.4	(Z)	(Z)	-	-
13	Engineering	16.2	88.5	1.3	1.2	1.5	0.8	0.6	1.0	0.5
14	Mathematical sciences	23.7	1.1	80.4	90.4	54.8	0.4	0.5	0.1	1.3
15	Agricultural sciences	0.3	0.2	1.3	0.1	4.4	34.1	13.1	81.0	43.1
16	Biological sciences	1.3	0.2	0.7	-	2.4	50.2	-	1.4	33.3
17	Medical sciences	0.7	0.2	0.7	0.3	1.8	5.3	0.1	1.7	4.0
18	Chemistry	1.2	1.2	0.3	0.2	0.7	1.4	0.1	1.2	2.1
19	Physics and astronomy	4.6	2.1	1.2	1.6	0.2	0.9	-	0.3	-
20	Earth, space, and marine sciences	1.2	0.4	0.1	0.1	-	0.1	-	0.6	3.4
21	Psychology	2.0	0.1	0.5	-	1.9	0.8	0.7	(Z)	-
22	Economics	3.0	0.2	3.0	-	10.7	0.3	0.1	(Z)	0.3
23	Sociology and anthropology	0.7	(Z)	0.7	-	2.7	0.1	0.3	(Z)	0.3
24	Other social sciences	2.3	0.3	0.5	-	1.8	0.2	0.2	0.1	-
25	Business and commerce	2.6	1.0	0.1	-	0.5	0.1	0.2	4.9	8.1
26	All other fields	26.1	5.5	7.7	4.6	15.4	4.5	2.5	0.7	2.7
27	Field not reported	1.0	0.9	0.6	0.6	0.8	0.8	0.4		
	SUPPLEMENTAL TRAINING IN 1975[1]									
28	Total persons	50,691	658,549	24,831	17,873	6,958	70,027	26,315	33,975	9,738
29	Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
30	With supplemental training in 1975	56.9	37.5	27.6	26.9	29.6	34.1	43.5	26.5	35.1
31	On-the-job training	33.8	16.8	13.8	14.1	13.1	18.9	30.8	11.6	11.9
32	Military training applicable to civilian occupations	0.8	0.8	0.7	1.0	0.2	0.5	0.7	0.3	0.9
33	Extension or correspondence courses	4.0	3.6	3.3	3.4	2.8	3.6	4.8	1.9	6.3
34	Employer training programs	32.3	17.2	10.7	9.8	12.9	11.5	18.3	7.4	7.8
35	Adult education center	6.5	4.1	2.0	1.9	2.4	4.1	4.0	3.9	5.3
36	Other training	13.6	7.6	7.1	7.7	5.4	9.5	10.0	7.7	14.5
37	No supplemental training in 1975	28.3	42.6	53.6	54.3	51.8	47.5	38.9	54.3	47.1
38	Not reported	14.7	19.9	18.8	18.9	18.6	18.4	17.7	19.2	17.8

[1]Sum of types of training may exceed total with training because of multiple response.

BY FIELD OF SCIENCE OR ENGINEERING: 1976

For meaning of symbols, see text)

Field of science or engineering in 1976--Continued														
Physical scientists				Environmental scientists					Social scientists				Not in a field of science or engineering in 1976	Line No.
Total	Chemists	Physicists and astronomers	Other physical scientists	Total	Earth scientists	Atmospheric scientists	Oceanographers	Psychologists	Total	Economists	Sociologists and anthropologists	Other social scientists		
117,043	83,788	27,502	5,754	26,997	22,370	3,223	1,404	34,186	45,582	17,726	10,309	17,546	157,559	1
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	2
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	46.9	3
-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	4
34.1	39.4	16.3	41.5	42.7	45.7	37.4	7.6	8.1	21.6	25.2	13.8	22.6	55.3	5
16.5	17.8	19.5	23.1	28.3	28.2	30.7	29.4	29.5	28.8	24.4	19.7	38.5	27.9	6
47.3	42.6	64.2	35.3	28.9	26.0	31.6	68.1	62.1	49.2	49.6	66.4	38.6	7.9	7
0.2	0.2	(Z)	-	0.1	0.1	0.4	-	0.2	0.4	0.8	0.1	0.3	2.6	8
-	-	-	-	-	-	-	-	-	-	-	-	-	3.1	9
117,043	83,788	27,502	5,754	26,997	22,370	3,223	1,404	34,186	45,582	17,726	10,309	17,546	152,747	10
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	11
(Z)	-	0.1	-	(Z)	0.1	-	-	-	0.1	0.1	-	0.1	1.0	12
3.2	2.6	2.4	15.3	5.3	5.1	5.4	7.8	0.4	0.4	0.6	0.1	0.4	28.4	13
0.5	0.3	0.7	2.6	1.9	1.5	4.9	1.7	0.1	0.3	0.1	-	0.6	6.1	14
0.9	0.8	-	6.6	2.2	2.6	0.7	-	-	0.3	0.8	-	-	3.8	15
8.2	11.1	0.2	3.8	1.1	0.8	-	7.7	0.3	0.2	-	0.1	0.3	4.5	16
0.7	0.8	0.3	1.3	-	-	-	-	0.1	0.1	0.1	-	0.2	2.7	17
58.2	60.3	1.1	7.8	1.1	0.7	3.9	0.9	-	0.1	0.1	-	0.1	4.1	18
24.8	1.0	92.7	45.8	6.8	5.1	19.7	4.4	(Z)	0.1	0.1	-	0.1	2.4	19
0.7	0.2	0.6	8.2	76.0	79.2	56.6	69.4	-	0.2	0.1	-	0.1	0.8	20
0.1	(Z)	0.1	-	(Z)	0.1	-	-	91.8	2.1	-	0.4	5.4	3.7	21
(Z)	0.1	-	-	0.3	0.4	-	-	-	36.0	87.8	0.1	4.7	4.2	22
(Z)	-	(Z)	-	(Z)	(Z)	-	-	0.1	22.9	0.3	92.6	4.7	1.6	23
(Z)	(Z)	(Z)	-	0.4	0.3	0.8	1.1	0.6	20.5	3.6	1.4	48.9	4.0	24
0.3	0.4	(Z)	-	0.1	0.1	0.4	-	-	0.1	0.3	0.1	-	5.6	25
2.0	1.8	1.1	8.7	3.7	3.0	7.1	6.1	6.0	16.3	5.3	4.6	34.3	24.7	26
0.4	0.4	0.5	-	0.9	1.0	0.4	0.9	0.5	0.5	0.9	0.6	0.2	2.2	27
117,043	83,788	27,502	5,754	26,997	22,370	3,223	1,404	34,186	45,582	17,726	10,309	17,546	157,559	28
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	29
31.1	32.3	24.7	43.9	34.4	35.3	29.4	31.6	39.9	25.3	21.0	18.0	33.9	40.0	30
14.3	15.3	9.6	22.2	14.7	17.3	11.4	18.2	18.7	11.5	10.5	7.6	14.8	20.4	31
0.5	0.4	0.7	-	0.4	0.3	1.5	0.6	0.8	0.6	0.4	0.1	1.0	1.0	32
2.9	2.6	3.2	5.5	3.3	3.0	6.2	1.7	2.8	3.3	1.5	2.0	6.0	3.8	33
11.4	11.5	9.3	20.6	14.5	14.5	14.8	13.0	7.5	10.0	8.9	4.3	14.5	16.3	34
3.5	4.1	1.7	2.6	4.2	4.7	2.0	1.5	4.6	3.2	1.4	2.3	5.6	4.5	35
7.3	7.4	6.9	8.9	7.8	8.1	6.4	6.5	20.7	7.7	5.0	5.0	12.1	10.8	36
49.9	48.5	56.0	41.4	45.0	44.7	45.5	48.2	41.8	53.9	57.5	61.4	45.9	42.2	37
19.0	19.2	19.3	14.8	20.6	20.0	25.1	20.3	18.3	20.8	21.6	20.6	20.2	17.8	38

Table 4. SELECTED EMPLOYMENT STATUS CHARACTERISTICS

(Detail may not add to total because of rounding.

Line No.	Selected employment status characteristics	Field of science or engineering in 1976								
				Mathematical specialists			Life scientists			
		Computer specialists	Engineers	Total	Mathematicians	Statisticians	Total	Agricultural scientists	Biologists	Medical scientists
	EMPLOYMENT STATUS IN FEBRUARY 1976									
1	Total persons	50,691	658,549	24,831	17,873	6,958	70,027	26,315	33,975	9,738
2	Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
3	In labor force	96.4	93.2	93.4	94.0	91.7	92.9	93.7	92.3	92.6
4	Employed	95.0	91.3	91.6	91.7	91.2	91.5	92.8	91.0	89.7
5	Full time	93.6	89.9	88.1	88.4	87.3	87.2	90.8	84.9	85.9
6	Part time	1.3	1.2	3.0	2.8	3.7	3.1	1.5	6.3	3.2
7	Seeking full-time work	0.2	0.3	0.6	0.7	0.2	0.6	0.4	0.9	0.4
8	Not seeking full-time work	1.1	0.9	2.3	2.0	3.1	2.4	1.1	5.3	2.8
9	Not reported	(Z)	0.1	0.2	0.1	0.4	(Z)	-	(Z)	-
10	Full or part time not reported	0.1	0.2	0.4	0.5	0.2	1.2	0.5	1.8	0.6
11	Unemployed	1.4	1.9	1.8	2.3	0.5	1.5	1.0	1.4	3.0
12	Not in labor force	3.6	6.8	6.6	6.0	8.3	7.1	6.3	7.7	7.2
13	Retired	1.2	4.3	4.4	3.7	6.3	4.7	6.1	3.9	4.0
14	Other	2.4	2.4	2.2	2.3	2.0	2.3	0.1	3.8	3.2
15	Not reported	(Z)	0.1	(Z)	0.1	-	(Z)	(Z)	-	-
	EMPLOYMENT STATUS IN FEBRUARY 1975									
16	Total persons	50,691	658,549	24,831	17,873	6,958	70,027	26,315	33,975	9,738
17	Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
18	In labor force	95.2	92.4	93.1	93.7	91.6	92.6	93.2	92.5	91.7
19	Employed	94.1	90.9	92.3	92.5	91.6	91.7	93.1	91.1	90.1
20	Full time	90.8	88.3	86.7	87.2	85.5	86.0	89.9	83.2	85.6
21	Part time	3.3	2.6	6.1	5.3	6.1	5.8	3.1	7.9	4.5
22	Seeking full-time work	0.2	0.2	0.8	1.1	-	0.5	1.4	0.2	0.9
23	Not seeking full-time work	3.1	2.4	5.3	4.2	6.1	5.3	1.7	7.7	3.6
24	Not reported	(Z)	0.1	0.0	0.0	0.0	(Z)	-	0.1	-
25	Full or part time not reported	1.0	0.1	0.4	0.1	0.1	0.4	0.1	0.4	0.2
26	Unemployed	1.1	1.5	0.8	1.1	-	0.9	0.1	1.4	1.8
27	Not in labor force	3.3	5.0	5.5	5.0	6.7	5.1	4.9	5.7	5.0
28	Retired	0.8	4.6	3.3	2.6	5.0	3.4	4.8	2.6	2.3
29	Other	2.3	0.3	1.5	1.5	1.5	1.8	(Z)	2.9	2.7
30	Not reported	0.1	0.1	0.7	0.9	0.2	0.1	(Z)	0.2	-
31	Employment status not reported	1.5	2.6	1.4	1.3	1.7	2.3	1.9	1.6	3.2
	FULL-TIME EMPLOYMENT IN SCIENCE OR ENGINEERING IN 1976									
32	Total employed full time February 1976	47,443	591,736	21,875	15,804	6,071	61,091	23,887	28,839	8,365
33	Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
34	In science or engineering	96.2	95.0	92.1	92.4	91.6	93.4	90.1	95.3	96.5
35	Not in science or engineering	2.7	3.3	6.2	5.9	7.1	4.8	7.7	3.2	1.7
36	Preferred nonscience or nonengineering	1.0	0.5	0.9	0.7	1.5	1.8	3.8	0.3	1.4
37	Promoted out of science or engineering	0.7	1.3	1.3	1.8	-	0.8	1.4	0.6	-
38	Pay better in nonscience or nonengineering	0.1	0.3	0.4	0.5	-	0.7	0.3	1.3	-
39	Locational preference	0.2	0.1	1.3	1.1	1.8	0.2	0.6	-	-
40	Science or engineering position not available	0.1	0.5	0.2	0.3	0.2	0.2	0.2	0.3	-
41	Other reason	0.4	0.5	2.0	1.4	3.4	0.5	0.4	0.6	0.2
42	Reason not reported	0.2	0.1	0.1	0.1	0.2	0.5	1.2	0.1	0.2
43	Not reported	1.1	1.7	1.6	1.8	1.3	1.8	2.2	1.5	1.7
	FULL-TIME EMPLOYMENT IN SCIENCE OR ENGINEERING IN 1975									
44	Total employed full time February 1975	46,013	581,188	21,538	15,588	5,950	60,254	23,663	28,255	8,336
45	Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
46	In science or engineering	97.5	95.9	93.6	93.5	93.3	93.9	90.1	95.9	98.2
47	Not in science or engineering	2.1	2.0	4.9	5.2	4.3	4.4	7.1	3.0	1.6
48	Preferred nonscience or nonengineering	0.6	0.5	0.6	0.4	1.3	1.5	2.9	0.4	1.6
49	Promoted out of science or engineering	0.2	1.2	1.6	2.2	-	0.7	1.2	0.5	-
50	Pay better in nonscience or nonengineering	0.2	0.3	0.4	0.5	-	0.7	0.2	1.2	-
51	Locational preference	0.1	0.1	0.3	0.4	-	0.4	1.0	-	-
52	Science or engineering position not available	0.4	0.3	0.3	0.4	-	0.2	0.2	0.2	-
53	Other reason	0.3	0.4	1.6	1.1	3.0	0.4	0.4	0.6	-
54	Reason not reported	0.3	0.1	0.2	0.2	-	0.5	1.2	0.1	-
55	Not reported	0.5	1.1	1.6	1.3	2.4	1.6	2.8	1.1	0.3
	UNEMPLOYMENT IN CALENDAR YEAR 1975									
56	Total persons	50,691	658,549	24,831	17,873	6,958	70,027	26,315	33,975	9,738
57	Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
58	Unemployed in calendar year 1975	4.5	4.4	3.5	4.2	1.7	3.0	1.4	3.9	4.4
59	1 to 4 weeks	1.3	0.7	0.5	0.6	0.4	0.8	0.4	0.8	1.9
60	5 to 10 weeks	1.5	0.8	0.8	0.8	0.8	0.3	0.1	0.5	-
61	11 to 14 weeks	0.5	0.4	0.6	0.7	0.2	0.3	-	0.4	0.3
62	15 to 26 weeks	0.4	0.7	0.6	0.8	-	0.7	0.7	0.8	0.7
63	27 weeks or more	0.7	1.3	0.7	0.9	0.3	0.8	(Z)	1.2	1.5
64	Median weeks of unemployment	7.9	14.6	11.7	12.7	7.2	15.8	16.2	15.9	14.2
65	Duration not reported	0.3	0.5	0.3	0.4	-	0.1	0.1	0.2	-
66	Not unemployed in calendar year 1975	92.5	89.7	92.4	92.1	93.2	91.9	93.1	91.3	90.3
67	Not reported	3.0	5.9	4.1	3.7	5.1	5.1	5.5	4.8	5.4

BY FIELD OF SCIENCE OR ENGINEERING: 1976

For meaning of symbols, see text)

Field of science or engineering in 1976--Continued														
Physical scientists				Environmental scientists				Psychologists	Social scientists				Not in a field of science or engineering in 1976	Line No.
Total	Chemists	Physicists and astronomers	Other physical scientists	Total	Earth scientists	Atmospheric scientists	Oceanographers		Total	Economists	Sociologists and anthropologists	Other social scientists		
117,043	83,788	27,502	5,754	26,997	22,370	3,223	1,404	34,186	45,582	17,726	10,309	17,546	157,559	1
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	2
92.9	91.8	95.2	97.3	94.5	96.9	91.6	94.2	94.3	91.2	90.6	91.0	90.7	94.7	3
91.5	90.4	93.8	96.9	93.6	94.0	91.6	92.1	91.8	89.7	89.6	90.4	89.3	92.2	4
87.9	87.2	86.8	94.3	91.3	91.5	90.9	87.3	84.1	85.2	86.8	84.6	84.0	88.2	5
2.4	2.0	3.4	2.6	1.3	1.5	0.7	-	6.8	3.6	2.2	5.5	3.8	5.5	6
0.4	0.3	0.6	0.2	0.1	0.1	0.3	-	1.5	0.8	0.4	1.4	0.8	0.8	7
1.9	1.6	2.6	2.4	1.0	1.2	0.4	-	5.1	2.8	1.9	4.1	2.9	2.7	8
0.1	0.1	0.1	-	0.1	0.2	-	-	0.2	0.1	-	-	0.1	0.1	9
1.2	1.1	1.6	-	1.1	1.0	-	5.0	0.9	0.9	0.6	0.3	1.5	0.5	10
1.4	1.4	1.4	0.4	0.9	0.9	-	1.9	2.5	1.5	1.0	2.6	1.4	2.0	11
7.1	6.2	4.8	2.7	5.5	5.1	8.4	5.8	5.7	8.8	9.4	7.0	9.3	5.8	12
5.6	5.4	3.9	3.1	4.6	4.1	8.0	4.9	3.5	5.8	8.0	2.3	5.7	4.0	13
1.4	1.7	0.7	0.4	0.4	0.4	0.4	-	2.2	2.7	1.3	4.5	2.9	1.8	14
0.1	(Z)	0.2	0.2	0.6	0.6	-	0.9	(Z)	0.3	0.1	0.2	0.7	0.1	15
117,043	83,788	27,502	5,754	26,997	22,370	3,223	1,404	34,186	45,582	17,726	10,309	17,546	157,559	16
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	17
92.6	91.8	94.3	97.2	94.5	95.2	89.5	94.2	92.5	91.0	90.7	92.4	90.4	92.5	18
91.4	90.5	92.9	96.3	94.0	94.7	89.5	94.2	91.0	90.3	90.3	91.0	90.0	90.4	19
86.2	85.8	86.5	91.0	89.6	90.8	85.2	82.2	81.5	84.2	86.7	82.4	82.8	86.0	20
2.3	1.8	3.5	4.3	1.9	2.0	1.1	1.0	6.8	4.0	2.2	6.8	4.2	3.2	21
0.5	0.4	0.7	1.9	0.4	0.4	-	1.0	1.0	0.9	0.2	1.5	1.1	0.6	22
1.7	1.3	2.7	2.4	1.2	1.4	0.4	-	5.4	2.9	1.8	5.1	2.6	2.2	23
0.1	0.1	0.2	-	0.3	0.2	0.8	-	0.4	0.2	0.1	0.5	0.5	0.4	24
2.9	3.0	2.8	1.0	2.5	1.9	3.2	11.0	2.6	2.1	1.4	1.9	3.0	1.2	25
1.3	1.3	1.4	0.9	0.5	0.6	-	-	1.5	0.7	0.3	1.4	0.4	2.0	26
5.8	6.6	3.9	1.8	3.9	3.1	9.4	4.9	4.4	6.8	7.6	5.1	6.9	5.8	27
4.4	5.0	1.1	1.4	3.5	2.6	9.0	4.9	2.3	4.3	6.0	1.6	4.2	3.4	28
1.3	1.3	0.8	0.2	0.4	0.4	0.4	-	2.0	2.2	1.5	3.5	2.2	2.3	29
0.1	0.1	-	0.2	0.1	0.1	-	-	0.1	0.2	0.2	-	0.5	0.1	30
1.6	1.6	1.8	0.9	1.6	1.7	1.1	0.9	1.1	2.2	1.6	2.5	2.7	1.8	31
102,917	73,058	24,432	5,427	24,635	20,478	2,930	1,226	28,747	38,841	15,388	8,719	14,737	138,901	32
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	33
97.4	97.3	97.2	99.0	97.0	96.4	99.5	100.0	90.7	82.6	83.1	86.6	79.7	91.5	34
1.3	1.5	1.2	0.3	1.5	1.8	-	-	7.4	15.7	15.1	12.4	18.3	36.1	35
0.4	0.3	0.6	-	0.6	0.7	-	-	2.7	5.2	5.5	4.3	5.4	10.7	36
0.8	0.8	0.3	0.3	0.2	0.2	-	-	0.7	1.4	2.5	0.4	0.9	6.5	37
(Z)	(Z)	-	-	0.1	0.1	-	-	0.5	0.6	0.4	1.8	0.1	4.0	38
(Z)	(Z)	-	-	-	-	-	-	0.3	1.6	0.9	0.9	2.7	1.9	39
0.1	0.2	0.1	-	(Z)	0.1	-	-	0.2	0.9	0.8	0.1	1.4	2.4	40
0.1	0.1	(Z)	-	0.5	0.6	-	-	2.1	4.1	3.1	4.8	4.6	8.3	41
(Z)	0.1	0.1	-	0.1	0.1	-	-	0.8	2.0	2.0	-	3.1	2.3	42
1.3	1.2	1.6	0.6	1.5	1.7	0.5	-	2.0	1.7	1.8	1.0	2.0	2.4	43
100,901	71,873	23,794	5,236	24,202	20,303	2,745	1,154	27,872	38,402	15,375	8,496	14,530	135,424	44
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	45
97.9	97.8	98.4	98.2	97.9	97.5	100.0	100.0	92.9	84.5	85.3	88.2	81.7	62.6	46
1.4	1.4	1.2	1.3	1.4	1.6	-	-	5.8	13.6	12.7	10.1	16.5	32.3	47
0.3	0.3	0.6	-	0.6	0.7	-	-	2.2	4.6	4.2	3.8	5.5	10.1	48
0.6	0.7	0.3	0.3	0.2	0.2	-	-	0.7	1.1	1.8	0.3	0.9	5.6	49
(Z)	(Z)	0.1	-	(Z)	0.1	-	-	0.5	0.4	0.4	1.0	0.1	3.7	50
0.1	0.1	-	-	-	-	-	-	0.2	1.3	0.9	1.0	2.0	1.7	51
0.2	0.2	0.2	1.0	(Z)	0.1	-	-	0.6	0.8	1.5	-	0.4	2.1	52
(Z)	0.1	-	-	0.5	0.6	-	-	1.5	3.2	1.4	3.3	5.1	6.7	53
0.1	0.1	0.1	-	-	-	-	-	0.2	2.1	2.5	0.8	2.6	2.3	54
0.7	0.8	0.4	0.4	0.7	0.9	-	-	1.3	1.9	2.0	1.7	1.8	5.1	55
117,043	83,788	27,502	5,754	26,997	22,370	3,223	1,404	34,186	45,582	17,726	10,309	17,546	157,559	56
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	57
3.3	3.3	3.4	3.0	2.4	2.3	3.6	1.0	5.0	3.7	1.9	7.6	3.2	7.0	58
0.5	0.5	0.3	0.5	0.4	0.4	0.4	-	0.6	0.6	0.2	1.9	0.2	1.5	59
0.5	0.4	0.8	0.9	0.4	0.5	-	1.0	0.8	0.8	0.2	1.9	0.8	1.2	60
0.5	0.5	0.4	0.5	0.1	0.1	-	-	0.9	0.7	0.2	2.1	0.3	1.6	61
0.4	0.4	0.5	0.2	0.3	0.3	-	-	0.8	0.8	0.4	1.0	1.1	0.8	62
1.2	1.2	1.3	0.6	0.3	0.4	-	-	1.5	0.6	0.7	0.6	0.5	1.7	63
15.5	16.1	16.9	9.7	8.9	9.5	(B)	(B)	13.8	12.0	22.3	9.9	15.5	11.8	64
0.2	0.3	0.1	0.2	0.9	0.6	3.3	-	0.4	0.2	0.3	-	0.3	0.4	65
92.2	92.3	91.4	94.2	92.8	92.7	92.9	93.8	90.2	90.7	92.7	88.5	90.0	87.8	66
4.5	4.4	5.2	2.8	4.8	4.9	3.5	5.2	4.8	5.8	5.5	3.9	6.7	5.2	67

Table 5. SELECTED JOB-RELATED CHARACTERISTICS

(Detail may not add to total because of rounding.

Line No.	Selected job-related characteristics	Field of science or engineering in 1976								
				Mathematical specialists			Life scientists			
		Computer specialists	Engineers	Total	Mathematicians	Statisticians	Total	Agricultural scientists	Biologists	Medical scientists
	OCCUPATION IN 1976									
1	Total employed in February 1976	48,159	600,994	22,737	16,389	6,348	64,057	24,408	30,912	8,737
2	Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
3	Computer specialists, total	95.3	0.5	1.8	2.4	0.4	(Z)	-	(Z)	-
4	Computer systems analysts	53.1	0.2	0.5	0.7	-	Z	-	(Z)	-
5	Computer scientists	13.3	(Z)	0.6	0.8	-	-	-	-	-
6	Other computer specialists	28.9	0.3	0.8	1.0	0.4	-	-	-	-
7	Engineers, total	0.5	79.0	0.8	1.1	-	0.2	0.4	0.1	-
8	Aeronautical and astronautical	-	3.4	0.1	0.2	-	-	-	-	-
9	Agricultural	-	0.5	-	-	-	(Z)	(Z)	-	-
10	Chemical	-	4.9	-	-	-	-	-	-	-
11	Civil and architectural	-	12.0	-	-	-	(Z)	0.1	-	-
12	Electrical and electronic	0.3	19.8	0.1	0.2	-	-	-	-	-
13	Industrial	0.1	3.7	-	-	-	-	-	-	-
14	Mechanical	-	17.2	-	-	-	-	-	-	-
15	Metallurgical and materials	-	2.1	-	-	-	(Z)	(Z)	-	-
16	Mining, petroleum, and geological	-	1.6	-	-	-	-	-	-	-
17	Nuclear	-	0.8	-	-	-	-	-	-	-
18	Environmental and sanitary	-	1.8	-	-	-	-	-	-	-
19	Operations research/systems	(Z)	1.7	0.5	0.7	-	(Z)	-	0.1	-
20	Other engineering fields	0.1	9.4	0.1	0.1	-	0.1	0.3	(Z)	-
21	Mathematicians and statisticians, total	0.2	0.4	74.0	69.4	86.0	(Z)	0.1	-	-
22	Mathematicians	0.2	(Z)	46.7	44.2	1.6	-	-	-	-
23	Statisticians and actuaries	-	(Z)	23.9	0.6	84.0	(Z)	0.1	-	-
24	Operations research analysts	(Z)	0.4	3.4	4.6	0.4	-	-	-	-
25	Life scientists, total	-	(Z)	-	-	-	79.9	75.6	80.8	88.5
26	Agricultural scientists	-	(Z)	-	-	-	29.5	75.4	1.7	-
27	Biological scientists	-	-	-	-	-	26.3	0.1	56.3	0.1
28	Biochemists and biophysicists	-	(Z)	-	-	-	2.2	-	4.6	-
29	Medical scientists	-	-	-	-	-	12.4	-	0.6	88.4
30	Other life scientists	-	-	-	-	-	9.5	0.1	19.6	-
31	Physical scientists, total	-	0.1	0.1	0.2	-	0.6	0.1	0.7	-
32	Chemists	-	(Z)	-	-	-	0.3	0.1	0.5	-
33	Physicists and astronomers	-	(Z)	-	-	-	-	-	-	-
34	Other physical scientists	-	(Z)	0.1	0.2	-	0.3	-	0.2	-
35	Environmental scientists, total	-	(Z)	0.1	-	0.2	0.2	0.3	0.1	-
36	Earth scientists	-	(Z)	-	-	-	(Z)	(Z)	-	-
37	Atmospheric scientists, meteorologists	-	(Z)	-	-	-	(Z)	-	(Z)	-
38	Oceanographers	-	-	-	-	-	-	-	-	-
39	Psychologists	-	(Z)	-	-	-	0.1	0.1	0.1	-
40	Social scientists, total	-	(Z)	-	-	-	(Z)	0.1	-	-
41	Economists	-	-	-	-	-	(Z)	-	0.1	-
42	Sociologists and anthropologists	-	-	-	-	-	-	-	-	-
43	Other social scientists	-	(Z)	-	-	-	0.1	-	0.2	0.4
44	Health occupations	-	0.6	-	-	-	0.5	0.1	0.9	-
45	Technicians and technologists, except medical	(Z)	0.1	1.1	1.6	-	1.2	0.5	2.0	0.1
46	Teachers[1]	1.0	14.6	18.7	21.4	12.0	13.9	19.8	11.1	7.0
47	Administrators and managers	-	1.4	0.7	1.0	-	1.2	1.2	1.6	-
48	Other occupations	2.1	3.4	2.6	3.1	1.4	2.3	1.7	2.3	3.9
49	Not reported									
	INDUSTRY IN 1976									
50	Total employed in February 1976	48,159	600,994	22,737	16,389	6,348	64,057	24,408	30,912	8,737
51	Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
52	Agriculture, forestry, and fisheries	0.1	0.4	1.4	0.1	4.8	22.7	50.7	7.0	0.1
53	Mining and petroleum extraction	0.6	1.5	0.3	0.4	-	-	-	-	-
54	Construction	0.1	3.9	0.7	0.2	1.7	0.2	0.2	0.3	-
55	Manufacturing, total	66.4	50.1	15.2	14.9	15.9	6.9	5.4	7.8	8.0
56	Primary metal industries	1.6	2.1	0.4	0.3	0.6	0.2	-	0.4	-
57	Fabricated metal industries	0.8	2.8	0.5	0.6	0.2	0.1	-	0.1	-
58	Machinery, except electrical and electronic	0.8	3.9	0.2	0.2	-	0.1	-	0.1	-
59	Electrical machinery, equipment, and supplies	1.5	3.7	0.8	1.2	-	0.1	0.2	(Z)	-
60	Electronic machinery and computing equipment	23.6	11.5	4.0	4.7	2.3	(Z)	0.1	(Z)	-
61	Aircraft and aircraft parts	2.5	6.3	1.6	1.6	1.7	0.1	-	(Z)	0.3
62	Motor vehicles and motor vehicle equipment	1.5	3.1	1.3	1.4	1.1	(Z)	-	-	0.1
63	Ordnance	1.8	4.1	1.5	1.9	0.5	-	-	-	-
64	Chemicals and allied products	3.0	5.0	3.0	1.5	6.8	3.8	2.0	4.7	6.1
65	Petroleum refining and related industries	2.5	2.6	0.4	0.4	0.6	0.1	0.1	0.1	-
66	Other manufacturing	4.8	4.9	1.4	1.0	2.2	2.5	3.1	2.2	1.5
67	Transportation, communications, and other public utilities	4.4	5.5	3.9	3.1	2.8	0.4	0.4	0.4	-
68	Wholesale and retail trade	1.9	9.6	0.3	0.4	0.2	0.8	1.8	0.3	-
69	Finance, insurance, and real estate	7.7	0.4	0.7	0.5	1.2	0.3	0.4	0.4	-
70	Educational institutions, total	7.8	3.3	47.1	55.0	26.6	41.6	21.4	56.1	53.7
71	College or university	6.6	2.8	30.4	45.6	19.8	29.8	20.2	41.5	15.2
72	Other	1.2	0.5	8.6	9.4	6.7	11.8	1.2	12.6	38.5
73	Health services	1.3	0.3	1.3	0.4	3.8	5.0	-	3.9	22.9
74	Services, except education and health, total	14.9	20.2	13.7	12.9	15.9	9.5	5.2	13.1	8.5
75	Engineering and architectural services	2.7	14.0	1.6	1.6	0.8	0.2	0.6	0.1	-
76	Research institutions	4.4	4.5	9.1	8.9	9.5	8.1	3.9	11.3	8.1
77	Other	7.9	1.7	3.7	2.3	5.6	1.2	0.9	1.7	0.4
78	Public administration	8.3	5.9	10.1	5.2	22.5	6.1	8.5	5.5	1.7
79	Federal	3.8	2.5	5.4	2.7	12.3	3.8	5.5	3.0	1.3
80	Other	4.5	3.5	4.7	2.5	10.2	2.4	2.9	2.5	0.4
81	Military	0.3	0.3	0.4	0.4	0.4	0.1	(Z)	0.1	-
82	Other industries	6.1	4.6	3.2	3.4	2.5	4.1	4.1	4.9	1.1
83	Not reported	1.9	3.1	2.7	3.1	1.7	2.3	2.0	2.1	3.9

See footnotes at end of table.

BY FIELD OF SCIENCE OR ENGINEERING: 1976

For meaning of symbols, see text

Field of science or engineering in 1976--Continued															
Physical scientists				Environmental scientists					Social scientists						
Total	Chemists	Physicists and astronomers	Other physical scientists	Total	Earth scientists	Atmospheric scientists	Oceanographers	Psychologists	Total	Economists	Sociologists and anthropologists	Other social scientists	Not in a field of science or engineering in 1976	Line No.
107,112	75,733	25,804	5,575	25,277	21,027	2,954	1,296	31,373	40,882	15,689	9,317	15,676	145,243	1
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	2
0.1	(Z)	1.2	-	0.1	0.1	0.4	-	0.5	(Z)	-	-	0.1	5.4	3
0.2	-	0.6	-	(Z)	0.1	-	-	0.2	-	-	-	-	1.3	4
(Z)	-	(Z)	-	-	-	-	-	-	-	-	-	-	0.1	5
0.1	(Z)	0.5	-	(Z)	-	0.4	-	0.4	(Z)	-	-	0.2	5.0	6
1.7	1.2	3.7	0.2	1.2	1.5	-	-	(Z)	-	-	-	-	4.2	7
(Z)	-	0.1	-	-	-	-	-	-	-	-	-	-	0.1	8
(Z)	(Z)	-	-	-	-	-	-	-	-	-	-	-	(Z)	9
0.4	0.6	(Z)	-	-	-	-	-	-	-	-	-	-	0.2	10
-	-	-	-	0.1	0.2	-	-	-	-	-	-	-	0.5	11
0.4	-	1.9	-	(Z)	0.1	-	-	(Z)	-	-	-	-	0.9	12
(Z)	(Z)	0.1	-	0.1	0.1	-	-	-	-	-	-	-	0.4	13
(Z)	-	0.1	-	-	-	-	-	-	-	-	-	-	0.6	14
0.2	0.2	0.2	-	0.2	0.3	-	-	-	-	-	-	-	0.1	15
0.1	0.2	0.1	-	0.6	0.6	-	-	-	-	-	-	-	(Z)	16
0.1	-	0.2	0.2	-	-	-	-	-	-	-	-	-	0.1	17
(Z)	(Z)	(Z)	-	-	-	-	-	-	-	-	-	-	0.1	18
(Z)	(Z)	0.1	-	-	-	-	-	-	-	-	-	-	0.1	19
0.3	0.2	0.6	-	0.1	0.1	-	-	-	-	-	-	-	0.7	20
0.1	0.1	0.3	-	(Z)	0.1	-	-	0.2	0.3	0.6	0.3	-	0.8	21
(Z)	-	0.1	-	-	-	-	-	-	0.1	0.3	-	-	0.2	22
(Z)	-	0.1	-	(Z)	0.1	-	-	0.1	0.1	0.2	0.2	-	0.3	23
0.1	0.1	0.1	-	-	-	-	-	(Z)	0.1	0.1	0.1	-	0.3	24
8.1	11.2	0.7	0.2	(Z)	0.1	-	-	0.3	0.4	0.2	1.3	-	0.7	25
(Z)	(Z)	-	-	-	-	-	-	-	(Z)	0.1	-	-	0.1	26
0.1	0.2	0.1	-	-	-	-	-	-	-	-	-	-	0.1	27
7.5	10.7	0.4	-	-	-	-	-	-	-	-	-	-	0.1	28
0.2	0.2	0.2	0.2	-	-	-	-	0.3	0.3	-	1.3	-	0.3	29
0.1	0.1	-	-	(Z)	0.1	-	-	-	(Z)	0.1	-	-	0.1	30
70.1	57.6	74.2	84.7	0.1	0.1	-	-	-	-	-	-	-	0.8	31
47.5	57.0	0.3	0.5	(Z)	0.1	-	-	-	-	-	-	-	0.4	32
17.7	0.1	73.5	-	-	-	-	-	-	-	-	-	-	0.1	33
4.8	0.5	0.4	84.1	(Z)	0.1	-	-	-	-	-	-	-	0.1	34
0.2	0.2	0.6	-	86.7	86.0	92.7	84.9	(Z)	-	-	-	-	0.1	35
0.1	0.1	0.2	-	71.3	85.7	-	0.9	-	-	-	-	-	0.1	36
0.1	-	0.3	-	10.7	0.1	90.7	-	(Z)	-	-	-	-	(Z)	37
(Z)	-	0.1	-	4.7	0.2	2.0	84.1	-	-	-	-	-	(Z)	38
-	-	-	-	-	-	-	-	78.6	(Z)	-	0.1	-	0.2	39
0.1	0.1	-	-	(Z)	-	-	0.8	0.6	69.8	71.8	75.2	64.7	0.4	40
0.1	0.1	-	-	-	-	-	-	(Z)	28.1	71.4	-	0.9	0.1	41
(Z)	(Z)	-	-	(Z)	-	-	0.8	-	17.0	-	74.4	0.2	(Z)	42
-	-	-	-	-	-	-	-	0.6	24.7	0.4	0.7	63.6	0.2	43
0.2	0.2	0.1	-	-	-	-	-	0.3	0.2	-	0.3	0.2	3.7	44
0.1	0.1	(Z)	-	-	-	-	-	-	-	-	-	-	5.9	45
0.7	0.5	0.8	2.0	0.6	0.7	-	-	3.7	2.8	2.6	2.7	2.9	0.6	46
16.1	16.8	15.4	9.9	8.7	8.7	6.5	13.3	11.8	23.2	21.6	17.8	28.1	46.2	47
0.4	0.4	0.3	-	0.1	0.1	-	-	1.2	1.1	1.3	1.1	0.9	21.0	48
2.0	1.7	2.7	2.9	2.4	2.7	0.4	1.0	2.6	2.2	1.8	1.2	3.1	3.1	49
107,112	75,733	25,804	5,575	25,277	21,027	2,954	1,296	31,373	40,882	15,689	9,317	15,676	145,243	50
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	51
1.1	1.1	(Z)	5.9	1.5	1.7	0.8	-	-	1.2	2.0	1.2	0.5	2.5	52
0.4	0.5	0.2	0.9	27.8	33.4	-	-	-	0.1	0.2	-	0.1	0.5	53
0.1	(Z)	0.1	-	0.4	0.5	-	-	0.6	0.2	0.4	-	0.1	3.8	54
42.7	52.1	18.6	26.9	11.6	13.2	4.6	2.0	2.4	9.2	12.9	4.1	8.6	35.0	55
1.2	1.5	0.2	1.0	0.6	0.8	-	-	-	0.9	1.4	-	1.0	1.4	56
0.6	0.8	0.1	-	-	-	-	-	0.1	0.3	0.6	-	0.2	2.3	57
0.1	0.1	0.4	-	-	-	-	-	-	0.1	-	0.2	0.3	2.2	58
1.2	0.8	2.3	2.5	-	-	-	-	0.3	0.2	0.3	-	0.2	1.7	59
3.3	1.9	6.9	5.4	0.6	0.7	-	-	0.4	1.0	2.1	0.3	2.2	8.8	60
1.0	0.7	1.5	3.3	-	-	-	-	0.3	1.0	0.4	1.1	1.5	2.4	61
0.9	0.9	0.8	0.9	-	-	-	-	(Z)	0.5	0.6	1.4	-	2.2	62
1.2	0.8	2.2	1.3	0.2	0.1	0.8	0.7	0.1	0.1	-	-	0.2	1.0	63
24.5	33.9	0.9	6.1	1.0	0.7	3.4	-	0.5	0.7	1.7	-	0.1	4.1	64
2.5	3.3	0.6	0.4	8.6	10.3	-	-	(Z)	0.4	1.1	-	-	1.5	65
6.1	7.3	2.8	6.0	0.6	0.6	0.4	1.3	0.6	3.2	4.7	1.1	2.9	7.4	66
1.1	1.0	1.2	2.4	1.6	1.3	2.7	-	0.2	1.3	2.9	0.3	0.2	4.2	67
0.3	0.4	0.1	-	(Z)	0.1	-	-	1.0	0.8	1.6	1.0	-	4.5	68
0.1	0.1	0.1	0.3	-	-	-	-	1.3	3.3	5.2	3.7	1.3	3.9	69
23.7	19.3	37.8	17.5	17.3	16.1	20.2	29.0	50.0	48.5	37.8	72.7	45.1	11.6	70
19.5	15.0	33.9	14.3	15.8	14.5	19.3	28.1	29.7	43.6	36.2	65.8	37.8	6.7	71
4.1	4.3	3.9	3.2	1.5	1.6	0.8	0.9	20.3	5.0	1.6	6.9	7.3	4.9	72
2.3	2.8	1.3	0.9	(Z)	0.1	-	-	22.9	2.3	0.1	2.6	4.3	3.8	73
16.4	11.4	29.8	23.1	17.9	14.6	28.6	48.1	12.4	10.4	10.2	6.8	12.7	12.7	74
0.9	0.4	2.4	0.2	2.6	2.9	-	2.9	0.1	0.6	0.8	0.2	0.8	4.2	75
14.1	9.4	26.0	21.6	11.9	8.2	23.4	45.2	4.3	4.4	4.9	4.6	5.1	2.1	76
1.5	1.6	1.3	1.3	3.5	3.4	5.1	-	7.8	4.9	4.6	2.0	5.8	6.4	77
4.0	3.7	2.5	15.3	13.2	10.2	33.0	17.9	4.0	17.8	23.5	4.9	21.5	7.5	78
1.8	1.6	1.6	5.2	7.3	4.8	24.5	8.6	1.2	8.8	14.1	1.9	7.2	2.3	79
2.3	2.1	1.0	10.2	5.9	5.4	8.5	9.3	2.8	9.0	7.2	3.0	14.3	5.2	80
0.1	(Z)	0.1	-	0.1	0.2	-	-	0.1	(Z)	-	-	0.1	0.5	81
5.4	5.4	5.2	5.7	6.3	6.0	9.7	2.9	2.1	3.0	3.5	1.3	3.5	6.7	82
2.3	2.1	3.0	1.1	2.3	2.7	0.4	-	3.0	1.8	1.8	1.5	2.0	2.8	83

Table 5. SELECTED JOB-RELATED CHARACTERISTICS

(Detail may not add to total because of rounding.)

Line No.	Selected job-related characteristics	Field of science or engineering in 1976								
				Mathematical specialists			Life scientists			
		Computer specialists	Engineers	Total	Mathematicians	Statisticians	Total	Agricultural scientists	Biologists	Medical scientists
	PRIMARY WORK ACTIVITY IN 1976									
1	Total employed in February 1976	48,150	600,996	22,737	16,389	6,348	64,057	24,488	30,912	8,737
2	Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
3	Research and development, total	17.0	10.1	12.7	11.8	9.7	27.7	23.7	29.4	11.0
4	Basic research	0.8	0.6	4.5	5.4	2.1	12.0	3.7	15.9	21.4
5	Applied research	1.3	3.1	4.7	4.3	5.6	12.3	13.4	11.0	6.4
6	Development	9.7	12.7	2.6	2.8	1.3	3.4	4.3	2.4	3.2
7	Design	5.1	13.8	1.1	1.3	0.7	0.1	0.2	(Z)	-
8	Management or administration, total	19.3	33.7	22.0	23.4	21.0	29.2	42.2	19.2	28.2
9	Research and development	7.3	11.6	9.3	8.9	10.3	11.0	9.5	11.4	12.9
10	Other	12.1	22.2	12.7	13.5	10.7	18.2	32.4	7.8	15.3
11	Teaching and training	3.9	2.3	37.1	45.8	14.7	24.0	7.0	36.9	26.2
12	Production and inspection	6.6	19.1	4.0	3.8	4.5	7.2	11.3	5.6	1.6
13	Quality control	1.3	3.7	1.7	1.6	2.5	6.6	1.0	2.8	0.8
14	Operations	1.6	9.1	1.7	1.7	1.7	6.0	8.1	1.4	1.0
15	Distribution-sales	1.6	2.4	0.6	0.7	0.3	1.4	2.0	1.4	-
16	Consulting	6.3	5.3	2.1	1.3	4.0	2.6	4.1	1.7	1.6
17	Clinical diagnosis	0.1	0.1	-	-	-	0.6	0.3	0.6	1.3
18	Consulting	6.2	5.2	2.1	1.3	4.0	2.0	3.8	1.1	0.6
19	Report writing, statistical work, and computer applications	42.1	4.3	17.9	8.2	42.9	3.3	4.6	2.6	2.1
20	Report writing	1.9	2.2	1.2	0.5	3.1	2.3	3.0	2.1	1.4
21	Statistical work	0.8	0.9	12.5	2.1	19.1	0.7	1.5	0.3	-
22	Computer applications	39.4	1.1	4.2	5.6	0.5	0.3	0.2	0.2	0.7
23	Other activities	1.9	4.4	0.8	1.2	-	2.7	4.1	1.8	1.3
24	Not reported	3.1	4.8	3.4	3.5	3.3	3.2	2.9	2.5	3.4
	TYPE OF EMPLOYER IN 1976									
25	Total employed in February 1976	48,150	600,996	22,737	16,389	6,348	64,057	24,488	30,912	8,737
26	Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
27	Business or industry	70.8	69.0	24.4	23.9	25.6	20.1	26.6	17.0	11.1
28	Educational institutions, total	7.6	6.4	48.8	54.7	30.4	48.8	22.7	54.6	56.4
29	Junior or 2-year college, technical institute	0.3	0.4	6.9	9.1	1.2	1.7	0.3	0.1	3.6
30	Medical school	0.3	(Z)	1.3	-	4.7	8.8	-	0.3	41.1
31	4-year college or university, other than medical school	6.8	5.8	37.9	45.0	19.7	29.7	21.8	40.9	12.0
32	Elementary or secondary school system	0.3	0.1	0.7	0.6	0.9	0.6	0.1	1.2	-
33	Hospital or clinic	0.7	0.1	0.2	-	0.8	2.0	-	1.3	4.9
34	Nonprofit organization	2.8	1.6	2.4	2.4	2.4	2.1	0.5	2.9	3.4
35	U.S. military service/commissioned corps	0.3	0.4	0.5	0.4	0.8	0.2	(Z)	0.1	1.2
36	Government, total	13.5	16.1	25.1	16.6	37.7	28.6	46.0	19.1	11.1
37	U.S. Government	7.1	9.3	15.3	11.7	24.5	20.1	34.6	12.1	7.9
38	State government	2.0	3.1	3.0	1.2	7.8	4.5	9.5	3.5	2.4
39	Local or other government	3.2	3.7	2.8	1.7	5.4	3.7	1.9	1.9	0.9
40	International agency	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	-
41	Self-employed	5.2	3.3	1.0	0.3	2.8	1.8	1.0	0.8	0.1
42	Other	1.7	1.7	0.8	0.7	1.0	1.1	0.4	1.5	1.1
43	Not reported	2.3	3.4	2.8	2.9	2.3	2.3	1.8	2.1	0.9
	BASIC ANNUAL SALARY RATE OF FULL-TIME EMPLOYED[1]									
44	Total employed full time in February 1976	47,443	591,736	21,975	15,804	6,071	61,091	23,987	28,839	8,365
45	Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
46	With salary reported	93.2	88.5	93.6	93.0	95.2	91.8	91.8	91.1	91.1
47	Less than $8,000	0.3	0.4	0.8	0.7	0.9	1.1	0.8	1.7	-
48	$8,000 to $9,999	0.7	0.4	0.3	0.3	0.2	1.0	0.7	1.2	0.6
49	$10,000 to $14,999	5.0	3.7	6.5	6.4	6.8	11.0	12.2	10.5	9.2
50	$15,000 to $19,999	24.8	19.4	28.0	30.4	18.7	26.4	33.4	24.5	12.6
51	$20,000 to $24,999	35.9	29.6	28.6	28.4	27.2	23.4	23.3	23.8	25.8
52	$25,000 to $29,999	16.9	19.0	21.2	21.4	20.6	15.9	14.3	15.3	19.1
53	$30,000 to $39,999	8.8	12.3	14.9	14.5	15.8	10.2	6.3	11.0	18.3
54	$40,000 to $49,999	0.7	1.5	0.6	0.4	0.2	1.2	0.8	1.2	2.6
55	$50,000 and over	0.2	1.5	0.6	0.4	0.2	1.2	0.8	1.2	2.6
56	Median salary (dollars)	21,583	23,196	23,551	23,538	23,636	20,893	19,954	21,186	23,170
57	Salary not reported	6.8	11.5	6.4	7.0	4.8	8.2	7.2	8.9	8.9
	JOB MOBILITY									
58	Total employed in February 1976	48,150	600,996	22,737	16,389	6,348	64,057	24,488	30,912	8,737
59	Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
60	Employed in February 1975	97.2	97.3	98.3	98.1	98.9	97.8	98.8	97.6	98.0
61	Job change between 1975 and 1976	14.9	11.3	11.2	11.7	11.0	12.5	10.9	13.0	13.2
62	Different occupation	4.8	3.1	3.5	3.5	3.4	3.8	2.3	3.5	3.5
63	Same occupation	6.4	5.7	6.9	7.0	6.5	7.2	6.9	6.9	9.2
64	Occupation change not reported	3.6	2.5	2.9	3.2	2.1	2.5	1.6	3.2	2.5
65	Same job in 1975 and 1976	80.9	85.7	83.0	82.4	84.7	83.7	85.4	82.5	82.3
66	Not reported	1.5	2.3	2.3	2.1	2.2	1.6	2.5	1.6	0.6
67	Not employed or employment status not reported in February 1975	2.8	2.7	1.7	1.9	1.1	2.2	1.2	2.4	4.0
68	Employed in January 1976	95.5	94.4	95.8	95.3	97.1	94.6	96.7	92.7	95.6
69	Job change between 1974 and 1976	30.0	23.4	22.4	21.7	24.2	20.9	20.3	20.8	22.5
70	Same job in 1974 and 1976	56.4	59.7	63.9	63.9	64.0	64.0	66.2	66.0	65.7
71	Not reported	9.1	11.3	9.5	9.7	8.9	8.9	10.2	7.8	9.3
72	Not employed or employment status not reported in January 1976	4.5	5.6	4.2	4.7	2.9	5.4	3.3	7.3	4.4
73	Employed in 1972	97.1	97.1	96.7	97.5	96.6	96.3	97.8	95.1	96.4
74	Job change between 1972 and 1976	48.8	38.8	32.8	31.3	36.7	33.3	33.7	32.5	36.9
75	Same job in 1972 and 1976	38.8	48.1	54.0	56.1	48.7	53.5	53.7	54.3	50.0
76	Not reported	9.4	10.2	9.9	10.1	9.2	9.5	10.4	8.3	9.4
77	Not employed or employment status not reported in 1972	2.9	2.9	3.3	2.5	3.4	3.7	2.2	4.9	3.6

See footnotes at end of table.

BY FIELD OF SCIENCE OR ENGINEERING: 1976—Continued

For meaning of symbols, see text

Field of science or engineering in 1976--Continued														
Physical scientists				Environmental scientists				Psychologists	Social scientists				Not in a field of science or engineering in 1976	Line No.
Total	Chemists	Physicists and astronomers	Other physical scientists	Total	Earth scientists	Atmospheric scientists	Oceanographers		Total	Economists	Sociologists and anthropologists	Other social scientists		
187,112	75,733	75,804	5,575	25,277	21,027	2,954	1,296	31,373	40,882	15,889	9,317	15,676	145,243	1
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	2
42.8	41.5	43.1	43.1	29.4	27.3	31.4	38.8	8.7	13.5	12.9	14.4	8.4	7.5	3
11.6	12.5	14.0	8.1	8.8	7.6	10.1	25.0	2.7	4.2	2.1	10.8	2.3	0.9	4
15.6	11.0	16.1	25.7	14.9	13.8	15.7	10.0	4.9	6.7	9.8	3.3	5.6	1.3	5
11.6	13.6	6.4	7.3	5.0	5.4	3.0	2.8	0.3	0.5	0.8	0.2	0.4	1.1	6
0.6	0.1	1.4	1.6	0.8	0.6	2.4	1.0	0.7	0.2	0.1	0.2	0.2	2.2	7
25.1	23.9	22.9	24.9	27.1	27.8	22.5	26.1	22.4	29.2	29.5	19.6	34.7	43.6	8
16.7	16.7	16.5	17.6	11.0	10.2	11.9	21.2	7.9	10.1	12.4	6.6	9.9	6.4	9
8.4	9.1	6.4	7.3	16.1	17.6	10.6	4.9	14.5	19.1	17.0	13.0	24.8	37.2	10
14.1	11.4	22.1	12.4	13.1	13.3	11.4	7.5	27.5	33.6	26.5	53.6	29.8	6.0	11
9.4	12.3	1.8	4.3	6.8	6.9	7.4	-	1.7	1.6	4.5	0.8	4.4	14.6	12
2.1	4.3	1.1	1.4	2.1	2.5	0.4	-	0.8	0.4	0.1	0.3	0.6	2.3	13
1.6	1.9	0.6	1.0	3.9	4.3	1.0	-	0.1	2.2	2.2	0.1	3.4	5.4	14
0.6	0.9	0.1	-	0.6	0.1	4.0	-	0.8	1.0	2.2	0.3	0.3	6.9	15
2.8	2.2	3.1	2.9	7.2	7.9	4.8	-	21.9	4.3	4.0	1.1	6.9	4.0	16
0.4	0.5	-	-	0.1	0.1	-	-	15.3	0.6	0.1	-	1.5	1.1	17
1.7	1.7	1.3	2.9	7.1	7.9	4.8	-	5.6	3.8	3.9	1.1	5.4	3.0	18
2.4	1.6	4.1	4.8	7.9	7.2	14.3	3.7	2.3	9.8	14.3	7.6	6.2	7.9	19
1.4	1.3	1.6	1.5	4.4	5.0	1.2	1.7	1.8	4.4	6.4	3.1	3.1	2.4	20
0.3	0.2	0.3	0.9	2.4	1.2	11.4	2.0	1.0	4.9	7.8	3.0	3.2	1.6	21
0.7	0.2	2.4	0.4	1.1	1.1	1.7	-	0.4	0.5	0.3	1.5	-	1.7	22
2.1	2.5	0.6	4.3	6.2	6.4	6.5	1.9	11.2	4.0	3.7	1.2	5.9	6.2	23
2.9	1.6	1.8	3.0	4.6	5.2	1.8	2.0	4.2	1.8	4.4	1.8	4.4	6.1	24
187,112	75,733	75,804	5,575	25,277	21,027	2,954	1,296	31,373	40,882	15,889	9,317	15,676	145,243	25
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	26
52.7	61.7	29.2	28.0	42.6	46.0	18.7	9.9	8.6	18.1	25.6	13.2	14.0	56.4	27
24.3	19.9	28.2	16.6	17.2	16.1	17.8	34.4	48.1	47.6	37.2	72.7	43.0	11.6	28
1.7	1.4	2.8	2.0	1.3	1.4	8.4	0.9	2.2	2.7	1.5	4.8	2.6	2.0	29
7.6	3.3	0.9	1.7	(Z)	0.1	-	-	2.7	0.9	-	1.9	1.3	1.1	30
15.7	15.0	34.4	15.1	15.7	14.4	17.4	11.6	10.0	43.2	25.7	66.0	37.2	6.5	31
0.2	0.2	0.3	-	0.1	0.2	-	-	14.2	0.9	0.1	-	2.2	2.0	32
0.9	1.2	0.4	-	(Z)	0.1	-	-	14.3	1.0	-	1.6	1.7	2.0	33
3.6	2.3	7.1	4.5	1.5	0.9	4.7	2.6	6.5	4.3	1.9	3.6	7.3	1.9	34
0.1	0.3	0.2	0.2	0.2	0.2	0.4	-	0.2	(Z)	-	-	0.1	0.5	35
14.1	11.0	16.6	33.7	27.4	21.7	56.8	52.1	10.2	23.2	28.7	7.4	27.0	11.6	36
10.5	7.4	16.7	23.3	18.7	15.0	45.5	35.4	3.6	13.1	20.6	3.7	11.0	4.6	37
1.7	1.7	0.5	2.2	3.4	3.6	3.3	8.9	3.7	4.9	3.1	1.0	8.6	3.5	38
2.1	1.9	1.5	8.2	4.3	3.1	6.1	14.7	2.9	5.2	4.8	2.7	7.1	3.5	39
0.1	-	-	1.9	(Z)	(Z)	-	-	(Z)	0.8	1.8	0.1	0.1	0.1	40
1.1	1.3	0.6	0.5	7.6	9.1	-	1.0	7.2	1.5	1.7	0.2	2.1	10.5	41
1.8	0.7	2.4	1.3	1.0	1.0	1.1	-	1.8	1.1	0.9	0.1	2.4	2.1	42
2.1	1.9	3.1	1.1	2.5	2.9	0.4	1.0	2.2	2.0	2.2	1.1	2.4	1.4	43
102,917	71,056	24,481	3,427	24,635	20,478	2,930	1,226	30,747	38,841	15,388	8,719	14,737	138,901	44
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	45
90.9	90.1	92.5	94.5	89.1	86.5	96.7	97.1	91.6	92.5	91.2	96.0	91.7	84.1	46
0.7	0.7	0.6	0.2	0.4	0.5	-	-	0.7	1.3	1.2	1.3	1.3	1.0	47
0.6	0.7	0.4	0.7	0.5	0.7	-	-	0.4	0.8	-	0.3	1.9	1.3	48
7.1	8.2	4.6	7.0	1.8	4.1	1.7	-	6.7	5.9	4.6	8.5	5.6	10.2	49
18.9	20.7	14.2	15.5	15.0	13.2	12.0	17.1	22.2	17.3	9.4	20.8	23.6	29.2	50
25.8	24.8	28.3	28.2	22.4	21.0	26.4	27.1	27.7	25.8	22.4	26.4	28.9	21.0	51
16.9	16.1	19.2	18.2	20.3	19.1	24.0	18.1	16.1	16.3	21.9	18.1	14.7	13.1	52
16.6	14.8	20.3	22.9	19.4	18.2	26.4	23.8	13.6	17.1	20.7	16.7	13.7	12.0	53
2.9	3.1	2.7	1.4	3.6	4.1	1.8	-	2.3	1.9	5.6	2.7	2.8	2.9	54
1.3	1.1	2.0	0.5	2.8	3.3	0.5	-	1.8	2.9	5.5	1.3	1.2	3.1	55
23,132	22,512	24,[illegible]	24,126	25,388	25,226	25,662	25,404	22,551	26,217	26,252	23,238	22,340	22,060	56
8.1	8.9	9.3	9.5	11.7	13.5	1.3	1.9	8.4	7.5	8.7	4.0	8.3	15.9	57
187,112	75,733	75,804	5,575	25,277	21,027	2,954	1,296	31,373	40,882	15,889	9,317	15,676	145,243	58
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	59
98.2	98.3	97.6	99.3	98.1	98.4	96.0	99.0	96.5	98.0	98.5	97.4	97.8	96.0	60
9.6	8.8	11.7	11.7	11.1	12.3	4.3	7.9	13.2	14.6	14.1	18.4	12.8	19.0	61
2.3	1.6	3.9	4.9	1.8	1.9	0.4	1.9	1.3	1.5	2.7	2.5	4.9	5.6	62
5.6	5.4	6.4	4.5	7.6	8.1	2.7	6.0	8.2	9.0	9.3	12.4	6.6	5.8	63
1.7	1.6	1.3	2.2	1.8	2.0	1.2	-	1.8	2.1	2.1	3.5	1.4	1.6	64
67.0	68.0	64.3	65.6	64.3	62.9	51.3	48.2	41.7	61.3	62.0	76.8	63.3	74.3	65
1.5	1.3	1.6	2.0	2.7	3.1	0.4	0.9	1.6	2.1	2.4	2.3	1.7	2.7	66
1.8	1.7	1.4	0.7	1.9	1.6	4.0	1.0	3.5	2.0	1.5	2.6	2.2	4.0	67
94.3	94.6	91.0	97.9	95.7	95.8	88.4	87.4	92.9	92.5	94.1	92.3	91.1	90.7	68
19.4	18.1	21.4	24.6	22.3	23.8	17.8	8.7	22.4	25.4	26.0	26.1	24.5	31.5	69
65.6	65.8	65.0	65.7	58.7	57.3	70.6	74.8	62.8	58.8	59.1	57.5	59.2	47.1	70
9.2	10.6	5.6	7.6	13.6	14.7	4.9	3.9	7.7	8.4	9.0	8.8	7.4	12.2	71
5.7	5.2	8.0	2.1	4.3	4.2	1.6	12.6	7.1	7.5	5.9	7.7	8.9	9.3	72
95.4	95.6	95.5	95.1	95.4	95.2	100.0	88.0	94.9	95.4	96.8	94.2	94.6	94.2	73
31.6	29.9	34.1	42.6	34.2	33.9	35.7	34.9	25.8	19.5	19.7	37.6	40.5	30.6	74
54.6	55.7	53.5	45.8	47.6	46.5	54.6	49.1	58.1	66.7	67.4	48.4	45.1	51.3	75
10.2	11.2	7.8	7.6	13.6	14.8	9.9	3.9	9.0	9.2	9.7	8.2	9.1	12.2	76
3.6	3.2	4.3	4.9	4.6	4.8	-	12.0	5.1	4.6	3.2	3.8	5.2	5.8	77

Table 5. SELECTED JOB-RELATED CHARACTERISTICS

(Detail may not add to total because of rounding)

Line No.	Selected job-related characteristics	Field of science or engineering in 1976								
				Mathematical specialists			Life scientists			
		Computer specialists	Engineers	Total	Mathematicians	Statisticians	Total	Agricultural scientists	Biologists	Medical scientists
	PROFESSIONAL IDENTIFICATION IN 1976									
1	Total persons	50,691	658,349	24,831	17,873	6,958	70,027	26,315	33,975	9,738
2	Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
3	Computer specialists	93.0	0.2	2.9	3.5	1.4	(Z)	(Z)	-	-
4	Engineers	0.3	81.3	2.2	2.7	0.8	0.1	0.1	0.1	-
5	Mathematicians and statisticians	0.6	0.4	75.2	70.5	87.1	0.1	0.1	0.1	-
6	Life scientists	-	(Z)	0.1	-	0.1	81.9	77.2	84.6	85.6
7	Physical scientists	0.2	0.2	0.8	0.1	1.0	0.3	0.1	0.6	-
8	Environmental scientists	(Z)	(Z)	(Z)	0.1	-	0.1	0.3	(Z)	-
9	Psychologists	-	(Z)	0.1	-	0.2	-	-	-	-
10	Social scientists	-	(Z)	0.3	0.2	0.5	0.1	(Z)	0.1	-
11	Administrators and managers	2.0	10.9	11.9	13.4	2.8	9.7	15.4	6.9	4.3
12	Other	0.1	0.5	1.9	2.6	-	2.4	1.6	2.8	3.0
13	Not reported	3.8	6.4	4.9	4.9	3.9	5.3	5.3	4.8	7.0
	YEARS OF PROFESSIONAL EXPERIENCE									
14	Total persons	50,691	658,349	24,831	17,873	6,958	70,027	26,315	33,975	9,738
15	Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
16	With years of professional experience reported	93.8	93.6	93.9	94.2	92.9	93.6	94.6	94.3	93.6
17	Less than 1 year	0.1	0.1	-	-	0.2	0.2	0.1	0.3	-
18	1 to 5 years	3.8	1.9	4.4	4.5	4.2	7.2	3.6	10.1	6.8
19	6 to 10 years	35.8	15.3	25.7	24.6	28.5	19.7	14.5	24.1	16.8
20	11 to 15 years	30.0	16.7	19.9	21.3	15.7	17.7	17.1	18.3	16.5
21	16 to 20 years	13.5	17.8	15.8	16.8	13.4	16.7	20.4	13.9	16.2
22	21 to 25 years	7.0	26.0	12.8	12.4	13.9	12.6	15.9	11.2	15.4
23	26 to 30 years	2.0	12.7	7.8	7.6	8.2	10.3	13.3	6.0	10.3
24	31 to 35 years	1.3	6.0	3.4	3.0	4.3	4.1	3.5	4.0	6.4
25	36 to 40 years	0.2	3.1	2.7	2.2	4.0	3.4	4.2	2.5	4.6
26	41 years and over	0.2	2.6	1.3	1.9	0.6	2.2	1.8	2.1	3.9
27	Median years of professional experience	11.3	19.1	14.3	14.2	14.5	15.6	18.0	13.6	16.7
28	Years of professional experience not reported	4.2	6.4	6.1	5.8	7.1	5.6	5.4	5.5	6.2
	FEDERAL SUPPORT IN 1976[3]									
29	Total employed in February 1976	48,159	600,994	22,737	16,389	6,348	64,957	24,408	30,912	8,737
30	Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
31	With federal support	26.2	37.7	36.3	31.0	50.0	50.8	57.4	42.9	54.6
32	Department of Agriculture	0.5	1.0	2.1	0.2	7.2	22.2	46.8	8.6	1.9
33	Department of Commerce	0.5	0.7	2.0	0.9	4.7	1.3	0.3	2.4	-
34	Department of Defense	14.0	21.4	15.7	18.5	8.2	2.3	1.0	2.8	4.2
35	Department of Health, Education, and Welfare	1.5	1.2	8.7	3.0	27.5	15.5	0.9	17.5	49.1
36	Department of Housing and Urban Development	0.6	1.9	0.6	0.2	1.1	0.2	0.1	0.3	-
37	Department of the Interior	0.5	1.3	0.5	0.7	0.2	3.3	7.5	5.1	-
38	Department of Justice	0.8	0.3	1.1	0.4	2.9	0.7	(Z)	0.9	1.7
39	Department of Labor	0.4	0.2	1.6	0.6	4.2	(Z)	(Z)	(Z)	-
40	Department of Transportation	1.7	5.4	2.9	1.7	2.6	0.4	(Z)	0.7	0.3
41	Agency for International Development	0.2	0.1	0.5	0.3	1.0	0.5	0.5	0.4	0.1
42	Energy Research and Development Administration	1.8	3.9	1.4	1.8	0.6	1.1	0.1	2.2	0.3
43	Environmental Protection Agency	0.8	2.6	0.8	0.6	1.4	1.7	1.2	2.4	0.8
44	NASA	4.3	6.7	2.1	2.6	1.0	1.0	0.1	1.5	1.6
45	National Science Foundation	0.9	1.0	4.8	5.1	4.3	3.8	1.1	6.2	2.7
46	Nuclear Regulatory Commission	0.3	0.6	0.3	0.4	0.2	0.1	-	0.2	-
47	Other Department or Agency	2.0	1.9	1.5	0.7	3.7	2.3	1.1	3.3	2.5
48	Agency not known or not reported	1.1	0.8	0.6	0.5	0.6	1.1	0.5	1.3	1.6
49	No federal support	67.4	55.2	55.4	59.3	45.4	43.3	38.3	49.1	36.7
50	Federal support not known	3.6	2.8	5.1	6.2	2.3	3.5	1.7	4.7	4.6
51	Not reported	3.0	4.2	3.2	3.5	2.3	3.2	2.6	3.4	4.1
	NATIONAL INTEREST TOPICS[4]									
52	Total persons	50,691	658,349	24,831	17,873	6,958	70,027	26,315	33,975	9,738
53	Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
54	Health	2.3	1.0	6.0	2.0	16.1	16.7	0.8	18.9	51.6
55	Education, total	3.0	1.4	19.9	26.1	9.2	11.8	3.2	16.5	18.3
56	Teaching	1.9	1.2	18.8	23.3	7.1	10.3	2.8	15.3	13.1
57	Other	1.0	0.2	1.2	0.8	2.1	1.5	0.4	1.2	5.2
58	Environmental protection, pollution control	1.0	12.6	1.9	1.6	2.9	21.0	32.6	17.7	1.5
59	Space	3.3	4.3	1.8	2.4	0.2	0.2	(Z)	0.4	0.1
60	National defense	12.1	16.6	12.7	16.6	7.7	0.5	0.4	0.7	0.2
61	Crime prevention and control	0.9	0.3	0.3	0.2	0.6	0.1	(Z)	(Z)	0.1
62	Food production and technology	0.9	1.5	1.5	0.2	4.7	17.7	32.6	11.0	0.4
63	Energy and fuel	5.2	13.4	3.4	4.3	1.3	0.6	0.6	0.7	-
64	Other mineral resources	0.1	1.0	0.6	0.8	-	0.1	0.3	-	-
65	Community development and services	2.2	3.0	1.8	1.4	3.0	1.2	1.6	1.0	-
66	Housing	0.2	1.9	0.3	0.2	0.5	0.2	0.5	-	-
67	Not applicable	55.5	29.0	36.2	35.0	39.1	18.2	16.1	28.4	15.7
68	Not reported	13.4	14.0	13.6	13.2	14.6	11.6	10.9	12.5	11.9

[1] College or university teachers of science or engineering are excluded from teachers and included in occupation corresponding to subject taught.
[2] Refers to salary for job held during the week of February 8-14, 1976.
[3] Sum of individual agencies' support may exceed total with Federal support because of multiple responses.
[4] Area of national concern in which persons devoted the largest proportion of professional time.

BY FIELD OF SCIENCE OR ENGINEERING: 1976—Continued

For meaning of symbols, see text.

Field of science or engineering in 1976—Continued															
Physical scientists				Environmental scientists				Psychologists	Social scientists				Not in any field of science or engineering in 1976	Line No.
Total	Chemists	Physicists and astronomers	Other physical scientists	Total	Earth scientists	Atmospheric scientists	Oceanographers		Total	Economists	Sociologists and anthropologists	Other social scientists		
117,043	63,788	27,502	5,754	26,997	22,370	3,223	1,404	34,186	45,582	17,726	10,309	17,546	157,559	1
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	2
0.1	(X)	0.2	-	0.1	0.1	0.4	-	-	0.3	0.4	0.8	0.2	6.8	3
1.8	1.2	3.6	1.0	1.3	1.3	0.4	-	0.2	0.4	0.3	-	0.4	8.0	4
(X)	-	(X)	-	0.1	0.1	-	-	0.1	0.1	0.2	-	-	1.2	5
0.1	0.1	0.1	0.1	0.1	0.1	-	-	0.1	0.1	0.1	0.1	0.1	1.5	6
73.1	78.2	74.9	63.3	1.5	0.7	6.3	1.6	-	0.2	-	-	0.4	2.8	7
0.1	0.1	0.1	0.1	66.0	66.7	67.9	63.1	-	-	-	-	-	0.4	8
-	-	-	-	-	-	-	-	66.0	0.1	-	0.1	0.1	0.2	9
(X)	-	(X)	-	-	-	-	-	0.4	74.7	74.9	62.5	89.9	1.3	10
10.4	11.0	9.1	10.3	3.4	3.2	1.6	1.6	7.0	15.1	13.0	11.9	19.1	43.2	11
1.0	0.9	1.2	1.0	0.7	0.8	0.4	-	1.3	2.6	2.4	1.8	3.4	28.3	12
3.8	3.1	3.3	1.9	4.2	4.1	4.1	3.2	4.8	8.3	8.8	3.0	6.5	6.3	13
117,043	63,788	27,502	5,754	26,997	22,370	3,223	1,404	34,186	45,582	17,726	10,309	17,546	157,559	14
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	15
94.9	95.2	93.6	94.6	93.7	93.6	97.0	94.6	94.4	92.5	92.1	93.7	91.1	92.3	16
0.1	(X)	0.1	0.3	0.1	0.1	0.4	-	0.1	0.3	0.1	-	0.8	0.6	17
3.9	4.3	7.8	5.8	5.3	5.3	0.7	13.7	10.4	6.6	4.7	4.3	7.1	6.8	18
19.0	17.7	23.3	18.6	12.1	11.8	15.5	15.9	24.3	25.7	22.1	30.4	23.8	19.7	19
17.1	16.3	16.6	16.1	11.7	11.7	11.7	25.2	19.2	19.5	16.9	20.0	19.8	19.1	20
15.1	15.9	16.7	19.4	18.0	17.9	16.3	16.6	14.9	11.9	10.9	11.5	13.3	17.1	21
13.9	14.3	12.7	13.9	20.0	20.2	22.3	11.9	12.0	10.9	11.8	7.7	11.9	11.6	22
9.3	10.0	6.7	11.2	12.6	13.3	10.4	2.9	7.5	9.0	11.5	6.2	7.0	6.5	23
6.3	7.2	4.1	6.2	3.2	4.7	10.9	1.4	2.6	4.1	6.9	3.6	2.3	4.1	24
5.6	6.6	3.7	4.7	4.2	4.2	6.0	0.9	2.4	3.6	4.7	1.8	3.0	3.5	25
2.4	2.6	2.0	1.6	2.6	2.7	0.6	5.1	1.1	1.6	2.3	0.9	1.4	1.2	26
16.7	17.6	14.4	16.3	19.4	19.6	20.9	13.3	13.4	14.0	15.0	11.9	13.2	15.0	27
5.1	4.8	6.2	5.2	4.3	4.4	3.0	5.2	5.6	7.3	7.9	4.3	8.9	7.7	28
107,122	73,733	21,884	1,575	25,277	21,027	2,954	1,296	31,373	40,882	15,689	9,317	15,676	145,243	29
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	30
37.1	37.3	51.4	37.3	36.2	36.6	61.3	43.1	37.5	40.2	19.9	31.5	45.6	23.7	31
1.7	2.0	0.3	3.0	3.2	3.5	2.0	-	0.2	5.6	9.5	4.6	2.3	1.4	32
1.6	0.9	2.6	3.1	0.8	1.0	32.9	27.7	0.4	1.8	3.2	0.5	1.2	0.8	33
11.6	5.7	27.2	19.7	7.3	6.5	14.5	35.6	3.0	5.8	6.0	1.9	6.0	6.2	34
6.0	10.1	3.4	1.6	0.5	0.6	-	-	27.6	16.1	3.3	16.9	23.3	3.6	35
0.1	0.1	0.1	0.5	0.0	0.0	0.4	-	0.1	2.7	2.8	1.0	3.7	1.4	36
1.4	1.2	0.5	7.6	11.4	12.2	3.9	16.0	0.1	1.6	1.6	1.9	1.4	1.1	37
0.5	0.7	0.2	0.4	0.6	0.7	-	-	3.3	2.8	0.6	3.2	4.7	1.4	38
0.1	0.2	-	0.2	-	-	-	-	1.6	4.0	5.0	0.3	5.1	1.1	39
1.0	1.0	1.1	0.9	1.1	1.0	-	4.9	0.6	1.8	2.3	0.4	2.2	2.6	40
0.1	0.1	-	-	0.2	0.2	-	-	0.2	1.0	1.2	1.1	0.7	0.2	41
6.7	5.4	16.2	4.6	7.6	1.0	8.3	1.7	0.1	0.8	0.9	0.6	0.7	1.6	42
2.2	2.6	1.0	2.0	2.1	0.9	8.8	7.3	0.1	1.2	1.0	0.2	1.9	1.1	43
4.3	1.8	10.7	9.8	3.9	2.1	13.6	4.7	0.3	0.9	1.4	0.2	0.8	2.9	44
6.0	4.1	12.2	4.2	7.5	4.8	17.8	27.4	2.1	2.2	2.0	4.2	1.2	0.7	45
0.5	0.5	0.6	0.6	0.2	0.3	-	-	-	0.1	0.1	-	0.1	0.2	46
2.1	1.9	2.2	4.3	1.8	1.6	0.6	6.5	4.8	5.2	8.8	2.2	3.3	2.4	47
0.6	0.4	0.7	2.1	0.3	0.4	-	-	2.3	1.0	1.7	0.8	0.6	1.3	48
57.0	58.6	32.9	37.8	56.6	65.4	16.7	5.8	51.3	52.3	52.9	63.7	45.0	68.2	49
2.9	3.6	1.7	2.5	1.3	1.4	0.8	-	7.2	3.6	3.1	2.5	4.7	3.5	50
3.9	2.7	3.9	2.4	3.9	4.4	1.3	2.0	4.8	3.9	4.1	2.2	4.7	4.6	51
117,043	63,788	27,502	5,754	26,997	22,370	3,223	1,404	34,186	45,582	17,726	10,309	17,546	157,559	52
100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	53
0.7	10.4	3.3	3.5	1.0	1.1	-	0.9	28.1	7.6	2.8	13.1	9.1	0.1	54
8.0	6.3	12.6	8.0	4.2	3.6	9.9	4.1	23.9	15.5	11.4	23.8	14.6	5.7	55
7.1	5.5	12.1	7.0	3.9	3.3	8.1	4.1	16.2	12.6	10.6	21.4	9.4	3.8	56
0.9	1.0	0.4	1.0	0.3	0.1	1.8	-	9.7	2.9	0.8	2.5	5.2	1.9	57
13.1	16.1	3.2	17.6	15.6	11.6	27.6	50.7	0.5	4.6	5.7	4.5	3.5	7.5	58
2.8	0.6	6.5	7.8	2.0	1.5	7.7	-	0.3	0.3	0.7	-	0.1	1.3	59
8.6	3.5	22.6	19.5	4.5	2.6	11.0	19.3	2.5	4.6	2.9	2.2	7.2	7.2	60
0.5	0.5	0.3	1.4	-	-	-	-	2.7	3.3	0.5	5.6	4.9	1.3	61
1.9	1.2	0.1	3.4	0.6	0.5	0.8	1.8	0.1	2.5	6.9	1.6	1.1	3.6	62
8.0	7.1	14.1	11.9	40.2	48.0	2.7	2.6	0.7	2.6	3.5	0.7	0.6	6.6	63
1.1	1.3	0.4	2.7	9.1	10.8	1.1	0.8	-	0.5	0.5	-	0.8	0.5	64
0.7	0.7	1.4	0.9	1.0	1.1	1.1	-	6.9	10.1	6.0	7.2	46.0	3.2	65
0.2	0.2	0.4	-	0.5	0.6	-	-	0.5	1.3	1.7	0.5	1.4	2.1	66
28.6	32.5	18.7	29.2	10.7	8.5	25.6	18.3	20.9	31.9	35.5	29.3	29.7	39.0	67
14.7	14.9	15.4	9.0	10.5	10.4	12.2	8.7	12.9	16.4	19.8	11.6	10.6	14.0	68

Appendix A. Weighting and Estimating Procedures and Standard Errors of Totals and Percentages

WEIGHTING AND ESTIMATING PROCEDURES

As mentioned earlier, the estimates for this report were prepared by a ratio estimation procedure, using the weights derived for the 1972 survey. Therefore, no adjustment was made for nonresponse in the 1976 survey. The weighting procedure for the 1972 survey involved first, the preparation of preliminary estimates by weighting the results for each sample person by the reciprocal of the probability of selection. As a second step, these weights were adjusted by applying a factor for each age, sex, and race cell within each of the sample's occupational categories from the 1970 census. Within each of the cells, the factor was computed as the ratio of the 1970 census count to the preliminary estimate. The final weight was the factor multiplied by the original weight of each person. To the extent that the correlation between the data being tabulated and the estimated count of persons in the cells is positive, the ratio estimate procedure will improve the reliability of the estimate.

RELIABILITY OF THE ESTIMATES

There are two types of possible errors associated with estimates based on data from a sample survey—sampling and nonsampling error. The following is a description of the sampling and nonsampling errors associated with the survey data.

Sampling errors. The particular sample used for this survey is one of a large number of possible samples of the same size that could have been selected using the same sample design. Even if the same schedules, instructions, and enumerators were used, estimates from each of the different samples would differ from each other. The deviation of a sample estimate from the average of all possible samples is defined as the sampling error. The standard error of a survey estimate attempts to provide a measure of this variation among the estimates from the possible samples, and thus, is a measure of the precision with which an estimate from the sample approximates the average result of all possible samples.

As calculated for this report, the standard error also partially measures the variation in the estimates due to response and enumerator errors (nonsampling errors), but it does not measure, as such, any systematic biases in the data. Therefore, the accuracy of the estimates depends on both the sampling and nonsampling errors, measured by the standard error, and biases and some additional nonsampling errors not measured by the standard error.

The sample estimate and its estimated standard error enable one to construct interval estimates that include the average result of all possible samples with a known probability. For example, if all possible samples were selected, each of these surveyed under identical conditions and an estimate and its estimated standard error were calculated from each sample, then:

1. Approximately 68 percent of the intervals from one standard error below the estimate to one standard error above the estimate would include the average result of all possible samples;

2. Approximately 90 percent of the intervals from 1.6 standard errors below the estimate to 1.6 standard errors above the estimate would include the average result of all possible samples;

3. Approximately 95 percent of the intervals from two standard errors below the estimate to two standard errors above the estimate would include the average result of all possible samples.

The average result of all possible samples may or may not be contained in any particular computed interval. However, for a particular sample one can say with specified confidence that the average result of all possible samples is included within the constructed interval.

A number of approximations and generalizations have been used so that these standard errors would be applicable to a wide variety of characteristics and still be prepared at a moderate cost. Thus, the standard errors in the following tables provide an indication of the order of magnitude, rather than precise measurements of the standard errors.

There are two sets of standard error tables shown: The table A series should be used for estimating standard errors on absolute numbers (total number of persons having a certain characteristic); the table B series should be used to obtain the standard error on a percentage.

The standard errors for estimating numbers or percents not shown in either set of tables may be approximated by linear interpolation. For example, of the 17,873 mathematicians, 30.2 percent have the Master's degree as the highest degree held in 1976. The standard error of this percent as computed from table A.6 is 1.9 percentage points. Based on

these data, it may be concluded that the expected proportion of mathematicians with a Master's degree as the highest degree held in 1976 lies within the interval 26.4 percent to 34.0 percent with 95 percent confidence.

The figures in these tables are not directly applicable to standard errors of differences between two sample estimates. The standard error of the estimated difference between two estimates may be approximated by the square root of the sum of the squares of the standard error of each estimate. This approximation will yield the exact result when the two characteristics are uncorrelated. If the two characteristics are positively (negatively) correlated, the approximation will overestimate (underestimate) the standard error of the difference.

For example, of the 17,873 mathematicians in 1976, 43.4 percent have the Ph.D. as the highest degree held in 1976. The standard error of this percent as computed from table A.6 is 2.1 percentage points. The standard error of the difference between the above percentages (i.e., 43.3 - 30.2 = 13.2 percent) is then approximately

$$\sqrt{(1.9)^2 + (2.1)^2} = 2.8 \text{ percent}$$

Based on these data, it may be concluded with 95 percent confidence that the average estimate of the difference of the percentages derived from all possible samples lies within the interval 7.6 percent to 18.8 percent.

The figures in these tables are not directly applicable to standard errors of estimated medians. The sampling variability of an estimated median depends upon the size of the base as well as on the distribution from which the median is determined. An approximate method for measuring the reliability of a median is to determine an interval about the estimated median, such that there is a stated degree of confidence that the median based on all possible samples lies within the interval. The following procedure may be used to estimate confidence limits of a median based on sample data: (1) from the appropriate standard error table B, determine the standard error of a 50 percent characteristic using the appropriate base; (2) add to and subtract from 50 percent the standard error determined in step (1); and (3) using the distribution for which the median is to be determined, read off the 68-percent confidence interval corresponding to the two points established in step (2). A 95-percent confidence interval may be determined by finding the values corresponding to 50 percent plus or minus twice the standard error in step (1). The procedure is illustrated by the following example.

The data for 1976 indicate that the estimate of the median age for engineers is 45.8 years. The distribution is shown in the table below.

From standard error table 2A the standard error of a 50 percent characteristic with a base of 658,549 is 0.5 percentage points. From the table of cumulative age distribution the percentage points that correspond to 45 years is 47.6 percent and to 50 years is 63.2 percent. The lower confidence limit corresponding to 49.5 percent (50 percent minus 0.5 percent) is found by linear interpolation between 45 years and 50 years to be 45.6 years, i.e.,

Table for Distribution of Engineers by Age in 1976

Age (years)	Percentage	Cumulative distribution
Under 30.....	4.5	4.5
30 to 34.....	12.6	17.1
35 to 39.....	15.5	32.6
40 to 44.....	15.0	47.6
45 to 49.....	15.6	63.2
50 to 54.....	15.4	78.6
55 to 59.....	9.5	88.1
60 to 64.....	6.1	94.2
65 to 69.....	3.7	97.9
70 and over...	2.1	100.0

$$45 + (50-45) \times \frac{49.5-47.6}{63.2-47.6} = 45.6$$

Similarly, the upper confidence limit corresponding to 50.5 percent (50 percent plus 0.5 percent) is found to be 45.9 years. Consequently, the 68 percent confidence interval, as shown by the data, is from 45.6 years to 45.9 years. Similarly, we could conclude that the 95 percent confidence interval is from 45.4 years (the distribution point corresponding to 49.0 percent) to 46.1 years (corresponding to 51.0 percent).

Nonsampling errors. In general, nonsampling errors can be attributed to many sources: Inability to obtain information about all cases, definitional difficulties, differences in the interpretation of questions, inability or unwillingness to provide correct information on the part of the respondents, mistakes in recording or coding the data, and other errors of collection, response, processing, coverage, and estimation for missing data. As can be seen from the above list, nonsampling errors are not unique to sample surveys, since they can, and do, occur in complete censuses as well.

The primary source of nonsampling error in estimates based on the 1976 survey is probably the high nonresponse rate. An adjustment in the estimation procedure for the 23 percent noninterview rate in the 1972 survey was made, but there still remains some unknown bias in the 1976 estimates due to differences in the characteristics of the weighted interviewed persons and noninterviewed persons. Further, since no adjustment was made for the additional 14.9 percent noninterview rate in 1976, estimates are on the average 14.9 percent lower than what they would have been had there been no additional nonresponse in 1976. For some characteristics, the estimates will be much more than 14.9 percent too low, because a relatively high proportion of noninterviews have this characteristic.

Standard Errors of Totals and Percentages for Computer Specialists, Life Scientists, Physical Scientists, and Chemists

Table 1A. Standard Errors of Totals

Size of estimate	Estimated standard error
970	190
2,910	340
5,820	480
9,700	620
14,550	750
20,370	870
27,160	990
34,920	1,100
43,650	1,200
53,350	1,290
64,020	1,300
75,660	1,440
88,270	1,480
101,850	1,510
117,043	1,520

Table 1B. Standard Errors of Percentages

Base of percent	Estimated percent						
	1 or 99	2 or 98	5 or 95	10 or 90	20 or 80	25 or 75	50
970	2.0	2.9	4.5	6.2	8.2	8.9	10.3
2,910	1.2	1.7	2.6	3.6	4.7	5.1	5.9
5,820	.8	1.2	1.8	2.5	3.4	3.6	4.2
9,700	.6	.9	1.4	1.9	2.6	2.8	3.2
14,550	.5	.7	1.2	1.6	2.1	2.3	2.7
20,370	.4	.6	1.0	1.3	1.8	1.9	2.2
27,160	.4	.5	.8	1.2	1.6	1.7	1.9
34,920	.3	.5	.7	1.0	1.4	1.5	1.7
43,650	.3	.4	.7	.9	1.2	1.3	1.5
53,350	.3	.4	.6	.8	1.1	1.2	1.4
64,020	.3	.4	.6	.8	1.0	1.1	1.3
75,660	.2	.3	.5	.7	.9	1.0	1.2
88,270	.2	.3	.5	.6	.9	.9	1.1
101,850	.2	.3	.4	.6	.8	.9	1.0
117,043	.2	.3	.4	.6	.7	.8	.9

Standard Errors of Totals and Percentages for Engineers, and Persons Not in a Field of Science or Engineering in 1976

Table 2A. Standard Errors of Totals

Size of estimate	Estimated standard error
5,480	560
16,440	970
32,880	1,360
54,800	1,750
82,200	2,130
115,080	2,490
153,440	2,840
197,280	3,180
246,600	3,490
301,400	3,790
361,680	4,060
427,440	4,310
498,680	4,520
575,400	4,700
658,548	4,840

Table 2B. Standard Errors of Percentages

Base of percent	Estimated percent						
	1 or 99	2 or 98	5 or 95	10 or 90	20 or 80	25 or 75	50
5,480	1.0	1.4	2.2	3.1	4.1	4.5	5.1
16,440	.6	.8	1.3	1.8	2.4	2.6	3.0
32,880	.4	.6	.9	1.3	1.7	1.8	2.1
54,800	.3	.5	.7	1.0	1.3	1.4	1.6
82,200	.3	.4	.6	.8	1.1	1.1	1.3
115,080	.2	.3	.5	.7	.9	1.0	1.1
153,440	.2	.3	.4	.6	.8	.8	1.0
197,280	.2	.2	.4	.5	.7	.7	.9
246,600	.2	.2	.3	.5	.6	.7	.8
301,400	.14	.2	.3	.4	.6	.6	.7
361,680	.13	.2	.3	.4	.5	.5	.6
427,440	.12	.2	.3	.3	.5	.5	.6
498,680	.11	.2	.2	.3	.4	.5	.5
575,400	.10	.10	.2	.3	.4	.4	.5
658,548	.09	.09	.2	.3	.4	.4	.5

Standard Errors of Totals and Percentages for Mathematical Specialists

Table 3A. Standard Errors of Totals

Size of estimate	Estimated standard error
200	70
600	130
1,200	190
2,000	240
3,000	300
4,200	350
5,600	390
7,200	440
9,000	480
11,000	510
13,200	540
15,600	570
18,200	590
21,000	600
24,831	600

Table 3B. Standard Errors of Percentages

Base of percent	Estimated percent						
	1 or 99	2 or 98	5 or 95	10 or 90	20 or 80	25 or 75	50
200	3.9	5.5	8.6	11.8	15.8	17.1	19.7
600	2.3	3.2	5.0	6.8	9.1	9.9	11.4
1,200	1.6	2.3	3.5	4.8	6.4	7.0	8.1
2,000	1.2	1.7	2.7	3.7	5.0	5.4	6.2
3,000	1.0	1.4	2.2	3.1	4.1	4.4	5.1
4,200	.9	1.2	1.9	2.6	3.4	3.7	4.3
5,600	.7	1.0	1.6	2.2	3.0	3.2	3.7
7,200	.7	.9	1.4	2.0	2.6	2.8	3.3
9,000	.6	.8	1.3	1.8	2.4	2.5	2.9
11,000	.5	.7	1.2	1.6	2.1	2.3	2.7
13,200	.5	.7	1.1	1.5	1.9	2.1	2.4
15,600	.4	.6	1.0	1.3	1.8	1.9	2.2
18,200	.4	.6	.9	1.2	1.7	1.8	2.1
21,000	.4	.5	.8	1.2	1.5	1.7	1.9
24,831	.4	.5	.8	1.1	1.4	1.5	1.8

Standard Errors of Totals and Percentages for Mathematicians, Agricultural Scientists, Environmental Scientists, Earth Scientists, Physicists and Astronomers, and Economists

Table 4A. Standard Errors of Totals

Size of estimate	Estimated standard error
220	80
660	140
1,320	200
2,200	260
3,300	320
4,620	370
6,160	430
7,920	480
9,900	530
12,100	570
14,520	620
17,160	660
20,020	690
23,100	720
27,502	750

Table 4B. Standard Errors of Percentages

Base of percent	Estimated percent						
	1 or 99	2 or 98	5 or 95	10 or 90	20 or 80	25 or 75	50
220	3.9	5.4	8.5	11.7	15.5	16.8	19.4
660	2.2	3.1	4.9	6.7	9.0	9.7	11.2
1,320	1.6	2.2	3.5	4.8	6.3	6.9	7.9
2,200	1.2	1.7	2.7	3.7	4.9	5.3	6.1
3,300	1.0	1.4	2.2	3.0	4.0	4.3	5.0
4,620	.8	1.2	1.8	2.5	3.4	3.7	4.2
6,160	.7	1.0	1.6	2.2	2.9	3.2	3.7
7,920	.6	.9	1.4	1.9	2.6	2.8	3.2
9,900	.6	.8	1.3	1.7	2.3	2.5	2.9
12,100	.5	.7	1.1	1.6	2.1	2.3	2.6
14,520	.5	.7	1.0	1.4	1.9	2.1	2.4
17,160	.4	.6	1.0	1.3	1.8	1.9	2.2
20,020	.4	.6	.9	1.2	1.6	1.8	2.0
23,100	.4	.5	.8	1.1	1.5	1.6	1.9
27,502	.3	.5	.8	1.0	1.4	1.5	1.7

Standard Errors of Totals and Percentages for Statisticians

Table 5A. Standard Errors of Totals

Size of estimate	Estimated standard error
50	30
150	50
300	80
500	100
750	130
1,050	150
1,400	180
1,800	200
2,250	220
2,750	250
3,300	270
3,900	290
4,550	320
5,250	340
6,958	390

Table 5B. Standard Errors of Percentages

Base of percent	Estimated percent						
	1 or 99	2 or 98	5 or 95	10 or 90	20 or 80	25 or 75	50
50	6.8	9.6	14.9	20.5	27.3	29.6	34.2
150	3.9	5.5	8.6	11.8	15.8	17.1	19.7
300	2.8	3.9	6.1	8.4	11.2	12.1	13.9
500	2.2	3.0	4.7	6.5	8.6	9.4	10.8
750	1.8	2.5	3.8	5.3	7.1	7.6	8.8
1,050	1.5	2.1	3.3	4.5	6.0	6.5	7.5
1,400	1.3	1.8	2.8	3.9	5.2	5.6	6.5
1,800	1.1	1.6	2.5	3.4	4.6	4.9	5.7
2,250	1.0	1.4	2.2	3.1	4.1	4.4	5.1
2,750	.9	1.3	2.0	2.8	3.7	4.0	4.6
3,300	.8	1.2	1.8	2.5	3.4	3.6	4.2
3,900	.8	1.1	1.7	2.3	3.1	3.4	3.9
4,550	.7	1.0	1.6	2.1	2.9	3.1	3.6
5,250	.7	.9	1.5	2.0	2.7	2.9	3.3
6,958	.6	.8	1.3	1.7	2.3	2.5	2.9

Standard Errors of Totals and Percentages for Medical Scientists, and Sociologists and Anthropologists

Table 6A. Standard Errors of Totals

Size of estimate	Estimated standard error
80	50
240	100
480	140
800	180
1,200	220
1,680	260
2,240	290
2,880	330
3,600	370
4,400	400
5,280	430
6,240	460
7,280	490
8,400	510
10,309	540

Table 6B. Standard Errors of Percentages

Base of percent	Estimated percent						
	1 or 99	2 or 98	5 or 95	10 or 90	20 or 80	25 or 75	50
80	7.3	10.3	16.0	22.0	29.4	31.8	36.7
240	4.2	5.9	9.2	12.7	17.0	18.4	21.2
480	3.0	4.2	6.5	9.0	12.0	13.0	15.0
800	2.3	3.3	5.1	7.0	9.3	10.1	11.6
1,200	1.9	2.7	4.1	5.7	7.6	8.2	9.5
1,680	1.6	2.2	3.5	4.8	6.4	6.9	8.0
2,240	1.4	1.9	3.0	4.2	5.6	6.0	6.9
2,880	1.2	1.7	2.7	3.7	4.9	5.3	6.1
3,600	1.1	1.5	2.4	3.3	4.4	4.7	5.5
4,400	1.0	1.4	2.2	3.0	4.0	4.3	5.0
5,280	.9	1.3	2.0	2.7	3.6	3.9	4.5
6,240	.8	1.2	1.8	2.5	3.3	3.6	4.2
7,280	.8	1.1	1.7	2.3	3.1	3.3	3.9
8,400	.7	1.0	1.6	2.2	2.9	3.1	3.6
10,309	.6	.9	1.4	1.9	2.6	2.8	3.2

Standard Errors of Totals and Percentages for Atmospheric Scientists

Table 7A. Standard Errors of Totals

Size of estimate	Estimated standard error
20	20
60	40
120	50
200	70
300	80
420	100
560	120
720	130
900	150
1,100	170
1,320	180
1,560	200
1,820	220
2,100	240
3,223	300

Table 7B. Standard Errors of Percentages

Base of percent	Estimated percent						
	1 or 99	2 or 98	5 or 95	10 or 90	20 or 80	25 or 75	50
20	11.4	16.1	25.0	34.5	46.0	49.8	57.5
60	6.6	9.3	14.5	19.9	26.5	28.7	33.2
120	4.7	6.6	10.2	14.1	18.8	20.3	23.5
200	3.6	5.1	7.9	10.9	14.5	15.7	18.2
300	3.0	4.2	6.5	8.9	11.9	12.8	14.8
420	2.5	3.5	5.5	7.5	10.0	10.9	12.5
560	2.2	3.0	4.7	6.5	8.7	9.4	10.9
720	1.9	2.7	4.2	5.7	7.7	8.3	9.6
900	1.7	2.4	3.7	5.1	6.9	7.4	8.6
1,100	1.5	2.2	3.4	4.6	6.2	6.7	7.7
1,320	1.4	2.0	3.1	4.2	5.7	6.1	7.1
1,560	1.3	1.8	2.8	3.9	5.2	5.6	6.5
1,820	1.2	1.7	2.6	3.6	4.8	5.2	6.0
2,100	1.1	1.6	2.4	3.4	4.5	4.9	5.6
3,223	.9	1.3	2.0	2.7	3.6	3.9	4.5

Standard Errors of Totals and Percentages for Oceanographers

Table 8A. Standard Errors of Totals

Size of estimate	Estimated standard error
10	10
30	20
60	30
100	40
150	50
210	60
280	70
360	90
450	100
550	120
660	130
780	150
910	170
1,050	190
1,404	240

Table 8B. Standard Errors of Percentages

Base of percent	Estimated percent						
	1 or 99	2 or 98	5 or 95	10 or 90	20 or 80	25 or 75	50
10	12.9	18.2	28.3	39.0	52.0	56.3	65.0
30	7.5	10.5	16.4	22.5	30.0	32.5	37.5
60	5.3	7.4	11.6	15.9	21.2	23.0	26.5
100	4.1	5.8	9.0	12.3	16.5	17.8	20.6
150	3.3	4.7	7.3	10.1	13.4	14.5	16.8
210	2.8	4.0	6.2	8.5	11.4	12.3	14.2
280	2.4	3.4	5.4	7.4	9.8	10.6	12.3
360	2.2	3.0	4.7	6.5	8.7	9.4	10.8
450	1.9	2.7	4.2	5.8	7.8	8.4	9.7
550	1.7	2.5	3.8	5.3	7.0	7.6	8.8
660	1.6	2.2	3.5	4.8	6.4	6.9	8.0
780	1.5	2.1	3.2	4.4	5.9	6.4	7.4
910	1.4	1.9	3.0	4.1	5.5	5.9	6.8
1,050	1.3	1.8	2.8	3.8	5.1	5.5	6.3
1,404	1.1	1.5	2.4	3.3	4.4	4.8	5.5

Standard Errors of Totals and Percentages for Psychologists and Social Scientists

Table 9A. Standard Errors of Totals

Size of estimate	Estimated standard error
370	130
1,110	230
2,220	320
3,700	410
5,550	500
7,770	580
10,360	660
13,320	740
16,650	810
20,350	870
24,420	920
28,860	970
33,670	1,010
38,850	1,030
45,582	1,050

Table 9B. Standard Errors of Percentages

Base of percent	Estimated percent						
	1 or 99	2 or 98	5 or 95	10 or 90	20 or 80	25 or 75	50
370	3.6	5.0	7.8	10.8	14.3	15.5	17.9
1,110	2.1	2.9	4.5	6.2	8.3	9.0	10.4
2,220	1.5	2.0	3.2	4.4	5.9	6.3	7.3
3,700	1.1	1.6	2.5	3.4	4.5	4.9	5.7
5,550	.9	1.3	2.0	2.8	3.7	4.0	4.6
7,770	.8	1.1	1.7	2.3	3.1	3.4	3.9
10,360	.7	.9	1.5	2.0	2.7	2.9	3.4
13,320	.6	.8	1.3	1.8	2.4	2.6	3.0
16,650	.5	.7	1.2	1.6	2.1	2.3	2.7
20,350	.5	.7	1.1	1.5	1.9	2.1	2.4
24,420	.4	.6	1.0	1.3	1.8	1.9	2.2
28,860	.4	.6	.9	1.2	1.6	1.8	2.0
33,670	.4	.5	.8	1.1	1.5	1.6	1.9
38,850	.3	.5	.8	1.0	1.4	1.5	1.7
45,582	.3	.5	.7	1.0	1.3	1.4	1.6

Standard Errors of Totals and Percentages for Biologists and Other Physical Scientists

Table 10A. Standard Errors of Totals

Size of estimate	Estimated standard error
280	90
840	170
1,680	240
2,800	310
4,200	380
5,880	450
7,840	520
10,080	590
12,600	660
15,400	730
18,480	800
21,840	870
25,480	940
29,400	1,010
33,975	1,090

Table 10B. Standard Errors of Percentages

Base of percent	Estimated percent						
	1 or 99	2 or 98	5 or 95	10 or 90	20 or 80	25 or 75	50
280	3.5	4.9	7.7	10.6	14.1	15.3	17.7
840	2.0	2.9	4.4	6.1	8.2	8.8	10.2
1,680	1.4	2.0	3.1	4.3	5.8	6.2	7.2
2,800	1.1	1.6	2.4	3.4	4.5	4.8	5.6
4,200	.9	1.3	2.0	2.7	3.6	3.9	4.6
5,880	.8	1.1	1.7	2.3	3.1	3.3	3.9
7,840	.7	.9	1.5	2.0	2.7	2.9	3.3
10,080	.6	.8	1.3	1.8	2.4	2.5	2.9
12,600	.5	.7	1.1	1.6	2.1	2.3	2.6
15,400	.5	.7	1.0	1.4	1.9	2.1	2.4
18,480	.4	.6	.9	1.3	1.7	1.9	2.2
21,840	.4	.6	.9	1.2	1.6	1.7	2.0
25,480	.4	.5	.8	1.1	1.5	1.6	1.9
29,400	.3	.5	.8	1.0	1.4	1.5	1.7
33,975	.3	.4	.7	1.0	1.3	1.4	1.6

Standard Errors of Totals and Percentages for Other Social Scientists

Table 11A. Standard Errors of Totals

Size of estimate	Estimated standard error
140	90
420	160
840	220
1,400	290
2,100	350
2,940	400
3,920	460
5,040	510
6,300	560
7,700	600
9,240	630
10,920	660
12,740	680
14,700	690
17,546	680

Table 11B. Standard Errors of Percentages

Base of percent	Estimated percent						
	1 or 99	2 or 98	5 or 95	10 or 90	20 or 80	25 or 75	50
140	6.6	9.3	14.4	19.9	26.5	28.7	33.1
420	3.8	5.4	8.3	11.5	15.3	16.6	19.1
840	2.7	3.8	5.9	8.1	10.8	11.7	13.5
1,400	2.1	2.9	4.6	6.3	8.4	9.1	10.5
2,100	1.7	2.4	3.7	5.1	6.8	7.4	8.6
2,940	1.4	2.0	3.2	4.3	5.8	6.3	7.2
3,920	1.2	1.8	2.7	3.8	5.0	5.4	6.3
5,040	1.1	1.5	2.4	3.3	4.4	4.8	5.5
6,300	1.0	1.4	2.2	3.0	3.9	4.3	4.9
7,700	.9	1.3	1.9	2.7	3.6	3.9	4.5
9,240	.8	1.1	1.8	2.4	3.3	3.5	4.1
10,920	.7	1.0	1.6	2.2	3.0	3.2	3.7
12,740	.7	1.0	1.5	2.1	2.8	3.0	3.5
14,700	.6	.9	1.4	1.9	2.6	2.8	3.2
17,546	.6	.8	1.3	1.8	2.4	2.6	3.0

Appendix B. Questionnaire and Reference Lists

O.M.B. No. 41-S75095; Approval Expires December 31, 1978

Form PNS-26A
(10-28-77)

U.S. DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUS

1976 NATIONAL SURVEY OF NATURAL AND SOCIAL SCIENTISTS AND ENGINEERS

NOTICE – Your report to the Census Bureau is confidential. It may be seen only by sworn Census employees and may be used only for statistical purposes.

Please read instructions carefully before answering questions.

Answer as accurately as you can by printing your reply clearly or by entering an "X" in the box next to the appropriate reply.

When the instructions for a question direct you to enter a code and description from a list, please refer to the reference list attached to this questionnaire.

A. Is the information shown in the mailing label above correct?

☐ YES

☐ NO – *Please enter the correct information*

Name

Number and street

City or town [010] | State (if USA) [011] | ZIP code

Foreign country

B. Is this mailing address the same address as your place of residence?

☐ SAME

☐ DIFFERENT – *Please enter your city and State or foreign country of residence.*

City or town | State (if USA) | ZIP code

Foreign country

Dear Friend:

Thank you for your continued cooperation in the National Sample of Scientists and Engineers, a series of biennial surveys sponsored by the National Science Foundation and conducted by the Bureau of the Census. From this series, a comprehensive picture of the development and utilization of America's scientists and engineers is being obtained. And, since the surveys include a sample of persons from various other fields, in addition to science and engineering, a valuable measure of the employment and skills among the highly educated population in general has been gained. Statistical data from these surveys are used for planning and analysis by Federal and State manpower agencies, private businesses, nonprofit research organizations, industrial and trade associations, and universities. Your cooperation, of course, has been an essential element in the success of this program.

To extend the value of past surveys, the National Science Foundation has asked the Bureau to survey this sample of persons once again to collect current employment information and related data. This is the most reliable and least costly way to learn, for example, how the employment of highly trained persons is affected by fluctuations in the economy. For the survey to be successful and yield truly representative information, it is important that each person fill out and return the questionnaire.

Please complete the questions which follow on pages 2 through 4 and return your questionnaire in the enclosed preaddressed envelope. For some questions you are instructed to enter a code and description from Reference List A, B, or C. These lists are attached to the questionnaire.

This information is being collected under the authority of the National Science Foundation Act of 1950, as amended. The information you provide is confidential and may be seen only by sworn employees of the Bureau of the Census. The information must be used for anything but statistical purposes and cannot be given to any other Government agency, private concern, or individual. The data will be released only in the form of statistical summaries from which it will be impossible to identify information about any particular person. Your response is entirely voluntary and your failure to provide some or all of the requested information will in no way adversely affect you.

Thank you for your cooperation.

Sincerely,

Vincent P. Barabba

VINCENT P. BARABBA
Director
Bureau of the Census

Enclosure

PART I – EDUCATION AND TRAINING

1. EDUCATION FROM 1972 TO THE PRESENT

a. Since January 1972 have you attended any college, university, or other post high school institution?
[813] 1 ☐ Yes – *Continue with 1b* 2 ☐ No – *Skip to question 2*

b. List below each institution from which you have obtained (since January 1972) or are currently obtaining formal training beyond the high school level, and give the other information requested. Begin with the most recent and work back through January 1972. Use a separate row for each degree granted or worked for. Designate degrees by abbreviation (e.g., A.A., B.A., M.A., Ph.D., LL.B., M.D., etc.).

	College, university, or other post high school institution (Enter Name and State or foreign country)	Type of degree worked for, if any (Enter Ph.D., M.A., B.A., A.A., etc. or mark "None" box)	Major field of study (Enter code and description from Reference List A)	Year degree was awarded or will be awarded. (Enter year or mark "None" box)
MOST RECENT	[813] Name _____ State or foreign country _____	[814] _____ OR ☐ None	[815] ← Code Description _____	[816] 19 ____ OR ☐ None
2ND TO LAST	[817] Name _____ State or foreign country _____	[818] _____ OR ☐ None	[819] ← Code Description _____	[820] 19 ____ OR ☐ None
3RD TO LAST	[821] Name _____ State or foreign country _____	[822] _____ OR ☐ None	[823] ← Code Description _____	[824] 19 ____ OR ☐ None

2. OTHER TRAINING RECEIVED IN 1974 OR 1975

Aside from formal education, which of the following types of training did you receive in 1974 or 1975?

Mark the appropriate year for each type of training you have received.

	[825] 1974	[826] 1975
1. On-the-job training	1 ☐	1 ☐
2. Military training applicable to civilian occupations	2 ☐	2 ☐
3. Extension or correspondence courses	3 ☐	3 ☐
4. Courses at employer's training facility	4 ☐	4 ☐
5. Courses at adult education center	5 ☐	5 ☐
6. Other training	6 ☐	6 ☐
7. None	7 ☐	7 ☐

PART II – EMPLOYMENT STATUS

PLEASE NOTE that in items 2a–5 information is requested for both the current year, as of the week of February 8–14, 1976, and last year, as of the week of February 9–15, 1975. Please answer applicable questions in column (A), then in column (B).

	Week of February 8–14, 1976 (A)	Week of February 9–15, 1975 (B)
2a. What was your employment status as of the week indicated?	[827] 1 ☐ Employed full time – *Skip to 4a* 2 ☐ Employed part time – *Answer 2b* 3 ☐ On post doctoral appointment (fellowship, traineeship, research associate, etc.) – *Skip to 4a* 4 ☐ Unemployed and seeking work – *Go to column (B)* 5 ☐ Not employed and not seeking work – *Skip to 5*	[828] 1 ☐ Employed full time – *Skip to 4a* 2 ☐ Employed part time – *Answer 2b* 3 ☐ On post doctoral appointment (fellowship, traineeship, research associate, etc.) – *Skip to 4a* 4 ☐ Unemployed and seeking work – *Go to Part III* 5 ☐ Not employed and not seeking work – *Skip to 5*
b. If you worked part time, were you seeking full-time work?	[829] 1 ☐ Yes 2 ☐ No } *Continue with 4a*	[830] 1 ☐ Yes 2 ☐ No } *Continue with 4a*
4a. Were you working in a position related to science or engineering?	[831] 1 ☐ Yes – *Go to top of column (B)* 2 ☐ No – *Answer 4b*	[832] 1 ☐ Yes – *Go to Part III* 2 ☐ No – *Answer 4b*
b. What was the most important reason for taking this position?	[833] *MARK ONLY ONE BOX* 1 ☐ Preferred nonscience or nonengineering position 2 ☐ Promoted out of science or engineering position 3 ☐ Pay was better in nonscience or nonengineering position 4 ☐ Locational preference 5 ☐ Science or engineering position not available 6 ☐ Other – Specify _____ *(Go to top of column B)*	[834] *MARK ONLY ONE BOX* 1 ☐ Preferred nonscience or nonengineering position 2 ☐ Promoted out of science or engineering position 3 ☐ Pay was better in nonscience or nonengineering position 4 ☐ Locational preference 5 ☐ Science or engineering position not available 6 ☐ Other – Specify _____ *(Go to Part III)*
5. If you were not employed and not seeking work, were you principally	[835] *MARK ONLY ONE BOX* 1 ☐ Retired 2 ☐ Other – Specify _____ *(Go to top of column B)*	[836] *MARK ONLY ONE BOX* 1 ☐ Retired 2 ☐ Other – Specify _____ *(Go to Part III)*

PART III – JOB ACTIVITIES

INSTRUCTIONS FOR COMPLETING QUESTIONS 6–10b

a. Complete column (A) for questions 6–10b for the job held during the week of February 8–14, 1976 or for your most recent prior job held.

b. Column (B) should be completed only if the job you had during the week of February 9–15, 1975 differed from the job described in column (A). If the job was the same, mark the "YES" box at the top of column (B). NOTE: Consider a change of jobs to have occurred if (1) you changed employers, or (2) you remained with the same employer but there were significant changes in duties, levels of responsibility, or occupation, or (3) you worked at a different institution while on sabbatical leave from a college or university.

c. If you held more than one job during the weeks mentioned above, please report only the job at which you worked the greatest number of hours.

	Job held during week of February 8–14, 1976 or most recent prior job (A)	Job held during week of February 9–16, 1975 Was this the same job as entered in column (A)? [837] 1 ☐ Yes – *Do not complete column (B)* 2 ☐ No – *Complete column (B)* (B)
6. Where did you work? *Write in city and State or foreign country of company, business, agency, or other employer.*	[838] City _____ [840] State or foreign country _____	[839] City _____ [841] State or foreign country _____

PART III – JOB ACTIVITIES – Continued

	Job held during week of February 8–14, 1975 or most recent prior job (A)	Job held during week of February 9–15, 1975 (B)
7. What kind of business was this? *Enter code and description from Reference List B.*	943 ☐☐☐☐ ← CODE Description _____	943 ☐☐☐☐ ← CODE Description _____
8. What was your occupation? *Enter code and description from Reference List C.*	944 ☐☐☐☐ ← CODE Description _____	945 ☐☐☐☐ ← CODE Description _____
9. What work activities were related to this position? *Mark all activities in which you spent time.*	946 1 ☐ Management or administration of research and development 2 ☐ Management or administration of other than research and development 3 ☐ Teaching and training – preparing and teaching courses, guiding and counseling students or trainees 4 ☐ Basic research 5 ☐ Applied research 6 ☐ Development – product, process, and technical development 947 7 ☐ Report and technical writing, editing, information retrieval 8 ☐ Clinical diagnosis 9 ☐ Design – of equipment, processes, models 10 ☐ Quality control, testing, evaluation, or inspection 948 11 ☐ Operations – production, maintenance, construction, installation 12 ☐ Distribution – sales, traffic, purchasing, customer and public relations 13 ☐ Statistical work – survey work, forecasting, statistical analysis 949 14 ☐ Consulting 15 ☐ Computer applications 16 ☐ Other activities – Specify _____	947 1 ☐ Management or administration of research and development 2 ☐ Management or administration of other than research and development 3 ☐ Teaching and training – preparing and teaching courses, guiding and counseling students or trainees 4 ☐ Basic research 5 ☐ Applied research 6 ☐ Development – product, process, and technical development 949 7 ☐ Report and technical writing, editing, information retrieval 8 ☐ Clinical diagnosis 9 ☐ Design – of equipment, processes, models 10 ☐ Quality control, testing, evaluation, or inspection 951 11 ☐ Operations – production, maintenance, construction, installation 12 ☐ Distribution – sales, traffic, purchasing, customer and public relations 13 ☐ Statistical work – survey work, forecasting, statistical analysis 953 14 ☐ Consulting 15 ☐ Computer applications 16 ☐ Other activities – Specify _____
10. Among all the activities marked above which was your primary and which was your major secondary activity? *Fill in the appropriate code numbers (1 to 16) from question 9.*	CODE 954 _____ Primary 956 _____ Secondary	CODE 955 _____ Primary 957 _____ Secondary
11. What percent of working time did you devote to each of the following activities? ***PLEASE NOTE*** **Basic research** is study directed toward gaining scientific knowledge primarily for its own sake. **Applied research** is study directed toward gaining scientific knowledge in an effort to meet a recognized need. **Development** is direction of the knowledge gained from research toward production of useful materials, devices, systems, and methods. *Entries in each column should sum to 100%.*	958 _____ % Management or administration of research and development 960 _____ % Management or administration of other than research and development 962 _____ % Basic research 964 _____ % Applied research 966 _____ % Development 968 _____ % Design 970 _____ % Teaching 972 _____ % Consulting 974 _____ % Other – Specify _____ 100% TOTAL	959 _____ % Management or administration of research and development 961 _____ % Management or administration of other than research and development 963 _____ % Basic research 965 _____ % Applied research 967 _____ % Development 969 _____ % Design 971 _____ % Teaching 973 _____ % Consulting 975 _____ % Other – Specify _____ 100% TOTAL
12. Which category best describes the type of organization of your principal employment in your doctoral department?	976 MARK ONLY ONE BOX 01 ☐ Business or industry 02 ☐ Junior college, 2-year college, technical institute 03 ☐ Medical school 04 ☐ 4-year college or university, other than medical school 05 ☐ Elementary or secondary school system 06 ☐ Hospital or clinic 07 ☐ Non-profit organization, other than hospital, clinic, or educational institution 08 ☐ U.S. military service, active duty, or Commissioned Corps, e.g., USPHS, NOAA 09 ☐ U.S. Government, civilian employee 10 ☐ State government 11 ☐ Local or other government – Specify _____ 12 ☐ International agency 13 ☐ Self-employed 14 ☐ Other – Specify _____	977 MARK ONLY ONE BOX 01 ☐ Business or industry 02 ☐ Junior college, 2-year college, technical institute 03 ☐ Medical school 04 ☐ 4-year college or university, other than medical school 05 ☐ Elementary or secondary school system 06 ☐ Hospital or clinic 07 ☐ Non-profit organization, other than hospital, clinic, or educational institution 08 ☐ U.S. military service, active duty, or Commissioned Corps, e.g., USPHS, NOAA 09 ☐ U.S. Government, civilian employee 10 ☐ State government 11 ☐ Local or other government – Specify _____ 12 ☐ International agency 13 ☐ Self-employed 14 ☐ Other – Specify _____

PART III – JOB ACTIVITIES – Continued

	Job held during week of February 9–14, 1976 or most recent prior job (A)	Job held during week of February 9–15, 1975 (B)
11. Between what dates did you hold this position? Enter month and year	978 From 979 To (OR Present)	980 From 981 To
12. What was the basic salary associated with this position? If you were on a post doctoral appointment, include stipend plus allowances. (Basic salary refers to salary before deductions for income tax, social security, retirement, etc. but does not include bonuses, overtime, summer teaching, or other payment for secondary jobs.)	982 $ _____ .00 983 1 Per year 2 Per month 3 Per week If academically employed, mark whether salary is for – 984 1 9–10 months 2 11–12 months	982 $ _____ .00 983 1 Per year 2 Per month 3 Per week If academically employed, mark whether salary is for – 984 1 9–10 months 2 11–12 months
13. During the previous year (1975 for Column A, 1974 for Column B), what was the basic salary associated with this position?	985 1 Did not hold this job in 1975 – Skip to 14a 986 $ _____ .00 in 1975 987 1 Per year 2 Per month 3 Per week If academically employed, mark whether salary is for – 988 1 9–10 months 2 11–12 months	985 1 Did not hold this job in 1974 – Skip to 14a 986 $ _____ .00 in 1974 987 1 Per year 2 Per month 3 Per week If academically employed, mark whether salary is for – 988 1 9–10 months 2 11–12 months
14a. Was ANY of your work supported or sponsored by U.S. Government funds?	989 1 Yes – Continue with 14b 2 No 0 Don't know } Skip to 15a	989 1 Yes – Continue with 14b 2 No 0 Don't know } Skip to 15a
b. Which of the following agencies or departments were supporting the work? Mark as many as apply	990 1 Department of Housing and Urban Development 2 Department of the Interior 3 Department of Labor 4 Department of Defense 5 Department of Commerce 6 Department of Agriculture	990 1 Department of Housing and Urban Development 2 Department of the Interior 3 Department of Labor 4 Department of Defense 5 Department of Commerce 6 Department of Agriculture
	991 7 Department of Transportation 8 Department of Justice Department of Health, Education, and Welfare: 9 NIH (National Institutes of Health) 10 Alcohol and Drug Abuse Mental Health Administration	991 7 Department of Transportation 8 Department of Justice Department of Health, Education, and Welfare: 9 NIH (National Institutes of Health) 10 Alcohol and Drug Abuse Mental Health Administration
	992 11 Office of Education 12 Other H.E.W. – Specify g 13 NASA (National Aeronautic and Space Administration)	992 11 Office of Education 12 Other H.E.W. – Specify g 13 NASA (National Aeronautic and Space Administration)
	993 14 NSF (National Science Foundation) 15 EPA (Environmental Protection Agency) 16 ERDA (Energy Research and Development Administration)	993 14 NSF (National Science Foundation) 15 EPA (Environmental Protection Agency) 16 ERDA (Energy Research and Development Administration)
	994 17 Nuclear Regulatory Commission 18 AID (Agency for International Development) 19 Other agency or department – Specify g	994 17 Nuclear Regulatory Commission 18 AID (Agency for International Development) 19 Other agency or department – Specify g
	995 20 Don't know source agency	995 20 Don't know source agency

PART IV – OTHER INFORMATION

17a. At anytime during calendar year 1975 were you without a job AND actively seeking employment?	1000 1 Yes – Continue with 17b 2 No – Skip to question 18
b. For how many weeks were you seeking employment?	1001 1 1 to 4 weeks 2 5 to 10 weeks 3 11 to 14 weeks 4 15 to 26 weeks 5 27 weeks or more
18. How many years of professional experience, including teaching, have you had? Enter number of years	1002 _____ Years
19. Based on your total education and experience, what do you regard yourself as professionally? Enter code and description from Reference List C.	1003 → CODE Description _____
20. Listed at the right are selected topics of national interest. If you devote a significant proportion of your professional time to any of these problem areas, please mark the box for the one on which you spend the MOST time.	1004 (write one, or one BOX) 01 Health 02 Education 03 Teaching 04 Other 05 Environment protection, pollution control 06 Space 07 National defense 08 Crime prevention and control 09 Food production and technology 10 Energy and fuel 11 Other natural resources 12 Community development and services 13 Housing, planning, design, construction 14 Does not apply
21. To the extent that it is necessary to contact you to clarify some of the information you provided, may we contact you by telephone? 1 Yes – Enter number(s) on which you can be reached –→ 2 No	Area code / Telephone number / Area code / Telephone number
22. Please enter the name of a person at an address other than yours through whom you can be reached.	Name / Address (number and street) / City / State or foreign country / ZIP code
23. Print your name here	Date prepared

REFERENCE LIST A – MAJOR FIELDS OF STUDY

This list is to be used in answering question 10 about the fields in which you have obtained study or training. It is divided into two sections. Section I is a list of fields of academic study generally leading to bachelor's or higher degrees. Section II is a list of fields of study and training below these generally leading to a bachelor's degree.

Please scan the entire list, choose the appropriate answer for the question and then enter the code and description in the appropriate section of question 10. If none of the categories listed below adequately describes what you were studying or being trained in, use the "Other" category (code 698 or 835) and enter a brief description of what you were studying in the space provided on the questionnaire.

Section I – FIELDS OF ACADEMIC STUDY LEADING TO BACHELOR'S OR HIGHER DEGREES

Code	Description
	Biological and Agricultural Sciences and Related Fields
001	Agriculture, business
002	Agriculture, general
003	Agronomy, field crops
004	Anatomy and histology
005	Animal physiology
006	Animal science
007	Bacteriology, virology, mycology, parasitology
008	Biochemistry
009	Biology, general
010	Biophysics
011	Botany, general
012	Dairy science (dairy husbandry)
013	Entomology
014	Farm management
015	Fish and game or wildlife management
016	Food science (food technology and processing, dairy manufacturing and technology, food industry)
017	Forestry
018	Genetics
019	Horticulture
020	Immunology
021	Microbiology
022	Plant pathology
023	Plant physiology
024	Soil science (soil management, soil conservation)
025	Zoology, general
026	Biological and agricultural sciences, other fields
	Education
027	Biological sciences education
028	Mathematics education
029	Physical sciences education
030	Trade and industrial training
031	Education, other fields
	Engineering
032	Aerospace, aeronautical, astronautical, and related fields
033	Agricultural
034	Architectural
035	Chemical, petroleum refining
036	Civil, construction, transportation
037	Electrical, electronics
038	Engineering sciences, mechanics, physics
039	Engineering technology
040	Environmental, sanitary engineering
041	General or unified
042	Industrial
043	Mechanical
044	Metallurgical, materials, ceramics
045	Mining, mineral, geological
046	Naval architecture and marine engineering
047	Nuclear
048	Operations research, systems engineering
049	Petroleum
050	Engineering, other fields
	Health Fields
051	Medicine or premedicine, and clinical medical sciences
052	Nursing (4 year or longer program)
053	Pathology
054	Pharmacology
055	Pharmacy
056	Health professions, other fields (4 year or longer program)
	Mathematical Sciences
057	Mathematics
058	Statistics and actuarial sciences
059	Computer sciences and systems analysis
060	Operations research, management science
	Physical Sciences
061	Astronomy
062	Chemistry
063	Geography
064	Meteorology
065	Physics
066	Physical sciences, general
067	Geology and geophysics
068	Oceanography
069	Physical sciences, other fields
	Psychology
069	Clinical
070	Educational
071	General psychology
072	Psychology, other fields
	Social Sciences
073	Anthropology
074	Area studies, regional studies
075	Economics, agricultural
076	Economics, except agricultural
077	Foreign service programs
078	Geography
079	History
080	Industrial relations
081	International relations
082	Political science or government
083	Public administration
084	Social sciences, general
085	Social work, social administration, social welfare
086	Sociology
087	Social sciences, other fields
	Arts, Humanities, and Other Specialties
088	Arts, general
089	Business and commerce, including accounting, hotel and restaurant administration, and secretarial studies
090	English and journalism
091	Fine and applied arts, all fields
092	Foreign language and literature, all fields
093	Geography
094	Home economics, all fields
095	Law or prelaw
096	Library science
097	Military science, including merchant marine deck officer
098	Philosophy, all fields
099	Religion and theology, all fields
698	Other (Describe briefly under the applicable item on the questionnaire.)

Section II – FIELDS OF ACADEMIC STUDY AND OCCUPATIONAL TRAINING RELATED TO PROGRAMS BELOW THE BACCALAUREATE

Code	Description
	Data Processing-related fields of study or training
601	Computer programming
602	Computer operating
603	All other data processing fields of study or training
	Engineering-related fields of study or training
604	Drafting and design, all fields
605	Aeronautical technology
606	Architectural or building technology
607	Chemical technology
608	Civil technology
609	Electrical and electronics technology
610	Industrial technology
611	Mechanical technology
612	All other engineering-related fields of study or training
	Science-related fields of study or training
613	Agriculture
614	Forestry
615	Other science-related fields of study or training
	Other fields of study or training
616	Business and commerce-related fields of study or training
617	Craft (skilled) occupations-related fields of study or training (such as carpentry, bricklaying, tool and die making, etc.)
619	Educational-related fields of study or training
620	Home economics
621	Nursing and other health service-related fields of study or training
622	Operative occupations-related fields of study or training (such as machine operation, driving, inspecting, etc.)
623	Police technology or law enforcement
624	Sales and marketing-related fields of study or training
629	Service occupations-related fields of study or training (such as cook, beautician, firefighter, etc.)
835	All other fields of study or training (Describe briefly under the applicable item on the questionnaire.)

PLEASE RETAIN REFERENCE AS YOU COMPLETE QUESTIONNAIRE

REFERENCE LIST B – KINDS OF BUSINESSES

This list is to be used in answering question 7 about the kind(s) of business or industry for which you worked. Please scan the entire list, choose the appropriate answer for the question and enter the code and description from this list. If none of the categories listed below adequately describes the kind of business for which you worked, use the "Other" category (code 730).

Code	Description
	Manufacturing
701	Aircraft, aircraft engines, aircraft parts
702	Chemicals and allied products
703	Electrical machinery, equipment and supplies for the generation, storage, transformation, transmission, and utilization of electrical energy
704	Electronic apparatus, radio, television and communication equipment and parts
705	Electronic computers, accounting, calculating and office machinery and equipment
706	Fabricated metal products (except ordnance, machinery and transportation equipment)
707	Machinery (except electrical) including engines and turbines, farming and construction machinery, mining, metalworking and other manufacturing and service industry machines
708	Motor vehicles and motor vehicle equipment including trucks, buses, automobiles, railroad engines and cars
709	Ordnance, including manufacture of arms, ammunition, tanks, and complete guided missiles, space vehicles and equipment
710	Petroleum refining and related industries
711	Primary metal industries, including smelting, refining, rolling, drawing, alloying, and manufacture of castings, forgings and other basic metal products
712	Professional and scientific equipment and supplies
713	Other manufacturing including printing and publishing
	Educational institutions
714	College or university (offering at least a bachelor's degree)
715	Junior college or technical institute
716	Medical school
717	Other educational institutions
	Health Services
718	Hospital or clinic
719	Other medical and health services
	Other Kinds of Business
720	Agriculture, forestry, and fisheries
721	Business, personal, and professional services
722	Construction
723	Engineering or architectural services
724	Finance, insurance, or real estate
725	Mining and petroleum extraction
726	Private, nonprofit organizations other than educational institutions and hospitals
727	Professional and technical societies
728	Research institutions
729	Retail and wholesale trade
730	Transportation, communication, or other public utilities
731	Other (Describe briefly under the applicable item on the questionnaire.)
	Public Administration (include only uniquely governmental activities, such as the U.S. Postal Service, U.S. Air Force, State court, Department of Motor Vehicles, city building inspection, or city public welfare. For example, if you work for the U.S. Postal Service use code 732. Federal public administration; on the other hand, if you work at a Veterans' Administration Hospital, use code 718, Hospital or clinic; if you work at a State university, use code 714, College or university; if you work for a county road building agency, use code 722, Construction; if you work in a Defense Department research laboratory, use code 728, Research institution.)
732	Uniformed military service
733	Federal public administration
734	State public administration
735	Local public administration (city, county, etc.)
736	Regional government
736	Other government

REFERENCE LIST C – OCCUPATIONS

This list is to be used in answering questions 8 and 10 about your occupational classification. Please scan the entire list, choose the appropriate entry and enter the code and description from this list. If you cannot find exactly the right entry, please choose the one that comes nearest to it. If none of the entries is at all appropriate, use the "Other" category (code 475) and enter a brief description in the space provided on the questionnaire.

Code	Description
	Engineers, including college professors and instructors
401	Engineer, aeronautical and astronautical
402	Engineer, agricultural
403	Engineer, chemical
404	Engineer, civil and architectural
405	Engineer, electrical and electronic
406	Engineer, industrial
407	Engineer, mechanical
408	Engineer, metallurgical and materials
409	Engineer, mining, petroleum, and geological
410	Engineer, nuclear
411	Engineer, environmental and sanitary
412	Engineer, operations research systems
413	Engineer, other fields (Describe briefly under the applicable item on the questionnaire.)
	Computer Specialist, including college professors and instructors
414	Computer programmer
415	Computer systems analyst
416	Computer scientist
417	Other computer specialist (Describe briefly under the applicable item on the questionnaire.)
	Mathematicians and Statisticians, including college professors and instructors
418	Actuary
419	Mathematician
420	Statistician
421	Operations research analyst
	Physical Scientists, including college professors and instructors
422	Chemist
423	Earth scientists including geologist, geophysicists, etc.
424	Physicist, astronomer
425	Atmospheric scientist, meteorologist
426	Oceanographer
427	Other physical scientist (Describe)
	Biological Scientists, including college professors and instructors
428	Agricultural scientists, including foresters and conservationists
429	Biological scientist
430	Biochemist
431	Biophysicist
432	Medical scientist, excluding persons who are primarily medical practitioners, see Health Occupations
433	Other biological scientist (Describe)
	Social scientists, including college professors and instructors
434	Economist
435	Psychologist
436	Sociologist or Anthropologist
437	Other social scientist (Describe briefly under the applicable item on the questionnaire.)
	Health Occupations, including persons who are primarily practitioners. Persons engaged primarily in medical research, teaching, and similar activities use code 432, Medical scientist.
438	Physician or surgeon
439	Technician, dental
440	Technician, medical
441	Other health occupation (Describe briefly under the applicable item on the questionnaire.)
	Technicians and Technologists, except medical
442	Designer, electronic parts and machine tools
443	Designer, industrial
444	Designer, other
445	Draftsman
446	Surveyor
447	Technician, biological and agricultural
448	Technician, electrical and electronic
449	Technician, construction, highways, and architectural
450	Technician, mechanical
451	Technician, other engineering
452	Technician, physical science
453	Technician, other fields (Describe briefly under the applicable item on the questionnaire.)
	Teachers
454	Teacher, elementary school
455	Teacher, secondary school
456	Teacher, college and university, **excluding engineering and science** (Engineering and science teachers use codes 401–407 above.)
	Administrators, Managers, and Officials, excluding farm
476	Urban and regional planner
457	College president or dean
458	Administrator or manager, scientific and technical research and development
459	Administrator or manager, production and operations
460	Administrator, manager, or official, all other, excluding self-employed
461	Self-employed proprietor
	All Other Occupations
462	Accountant
463	Attorney or judge
464	Sales worker
465	Clerical worker (such as bookkeeper, secretary, etc.)
466	Clergy
467	Craft worker (such as baker, carpenter, electrician, mechanic, repair worker)
468	Farmer (owner, manager, tenant, or farm laborer)
469	Fire fighter or police
470	Laborer, except farm
471	Librarian
472	Merchant or shopkeeper, self-employed
473	Operative (such as assembler, factory worker, miner, welder, truck driver, etc.)
474	Postal worker
475	Other occupations, not specified above (Describe briefly under the applicable item on the questionnaire.)

CORRESPONDING MAJOR FIELDS OF STUDY, BY FIELD OF SCIENCE OR ENGINEERING IN 1976

(Codes are from reference list A of this appendix)

Fields of science or engineering in 1976	Corresponding major fields of study
Computer specialists	559
Engineers	532-550
Mathematical specialists	500, 557, 558
Life scientists	501-526, 551, 554-556
Physical scientists	560, 561, 565, 568
Environmental scientists	563, 566, 567
Psychologists	569-572
Social scientists	573-577, 580-584, 586, 587, 593

Appendix C.
SOURCE OF DATA

Table number	Characteristic	Item number on 1976 questionnaire[1]	Source code[2] on 1976 questionnaire
1	Sex	(From the 1972 survey response, if available; otherwise, from the 1970 census response)	
1	Age in 1976*	(From the 1970 census response)	
1	Field of science or engineering in 1974*	(From the 1972 or 1974 survey responses)	
2	Race*	(From the 1970 census response)	
2	Place of residence in 1976	A or B, page 1	010, 011
2	Selected SMSA's of residence: 1976*	A or B, page 1	010, 011
3	Highest degree held*	1b; otherwise from 1972 survey response	014, 016, 018, 020, 022, 024
3	Major field of study for highest degree held*	1b; otherwise from 1972 survey response	015, 019, 023
3	Supplemental training in 1975	2	026
4	Employment status: February 1976*	Part II, column A; and Part III, column A: 13	027, 029, 031, 035, 078, 079
4	Employment status: February 1975*	Part II, column B; and Part III, column B: 13	028, 030, 032, 036, 080, 081
4	Full-time employment in science or engineering: February 1976	Part II, column A: 3a, 4a, 4b	027, 031, 033
4	Full-time employment in science or engineering: February 1975	Part II, column B: 3a, 4a, 4b	028, 032, 034
4	Unemployment in 1975*	Part IV, 17a, 17b	110, 111
5	Occupation in 1976	Part III, column A: 8	044
5	Industry in 1976	Part III, column A: 7	042

See footnotes at end of table.

SOURCE OF DATA—Continued

Table number	Characteristic	Item number on 1976 questionnaire[1]	Source code[2] on 1976 questionnaire
5	Primary work activity in 1976*	Part III, column A: 9, 10, 11	054, 058-072
5	Type of employer: 1976*	Part III, column A: 12	076
5	Basic annual salary: 1976*	Part III, column A: 14	082, 084, 086
5	Job mobility: 1975-1976*		
	a) Job change	a) Part III, column B: 6	a) 037
	b) Occupation change	b) Part III, column A, B: 8	b) 044, 045
5	Job mobility: 1974 to 1976*	1974 survey response; and Part III, column A: 13	078
5	Job mobility: 1972 to 1976*	1972 survey response; and Part III, column A: 13	078
5	Professional identification in 1976	19	113
5	Years of professional experience	18	112
5	Federal support: 1976	Part III, column A: 16a, 16b	096, 098, 100, 102, 104, 106, 108
5	National interest topics	20	114

*For more information, see appropriate subject in section of text on "Definitions and Explanations."

[1]The 1976 National Survey of Natural and Social Scientists and Engineers questionnaire is reprinted in appendix A.

[2]Source codes refer to sections of the 1976 questionnaire denoted by a 3-digit number inside a circle, e.g., (012) for the "Educational Attainment" section of page 2.

Appendix D. Criteria for Fields of Science or Engineering in 1976

CRITERIA FOR MEMBERSHIP IN A FIELD OF SCIENCE OR ENGINEERING IN 1976

Respondents in the 1976 National Survey of Natural and Social Scientists and Engineers were classified into a specific field of science and engineering in 1976 if they met, in relation to the specific field, any one of the criteria given below. Classification by these criteria proceeded such that all respondents were initially examined by the first criterion; those not placed into a field by the first criterion, were then examined by the second; those not categorized by the second, were examined by the third; and so on, until only those remained who met none of the criteria were classified as "not in a field of science or engineering in 1976." A respondent who failed to report the 1976 status of any item examined by these criteria was judged by his or her most recent entry for the item, be it from the 1974 or 1972 surveys. The academic degree levels and major fields of study used in these criteria refer to the highest degree held. The coincident and related occupations and professions are shown in the table in this appendix. Occupation of employment refers to the most recent job for which occupation was reported.

THE CRITERIA

A member of a field of science or engineering in 1976 is an individual who (1) had earned a master's degree or higher[1] in a coincident field of study and who regarded himself, based on his total education and experience, as having a coincident profession; or (2) had earned a Ph.D. in any field of social or natural science,[2] and was employed in a coincident occupation; or (3) had earned a bachelor's degree or higher in a coincident field of study, and was employed in a coincident occupation; or (4) had earned a bachelor's degree or higher in any field of study, was employed in a coincident occupation, and regarded himself as having a coincident profession; or (5) whose highest degree[3] was in a coincident field of study[4], and who was employed as a college president, college dean, or manager or administrator of research or development, production or operations[5] or (6) had earned a bachelor's degree or higher in a coincident field of study,[6] was employed in a related occupation, and regarded himself as having a coincident profession; or (7) had earned a bachelor's degree in a coincident field of study since 1969 and who regarded himself as having a coincident profession; or (8) had earned a bachelor's degree or higher in any field or science[7] and was employed as a college president, college dean, or administrator or manager of research or development, production or operations[8] and who regarded himself as having a coincident profession; or (9) whose highest degree[9] was in a related field of study and who was employed in a coincident occupation and who regarded himself professionally to be a college president, dean, or administrator or manager of research or development, production or operations.[10] The field "engineers" also includes any individual who failed to meet any of the above 9 criteria but who had completed a minimum of two years of a program of study leading to a bachelor's degree in engineering or a related field of study before 1968, and was employed as an engineer, and regarded himself professionally to be an engineer or a manager or administrator of research or development, production or operations,[11] or who earned an associate degree before 1968, and was employed as an engineer, and regarded himself professionally to be an engineer or a manager or administrator of research or development, production, or operations.[12]

Some respondents to the 1976 survey reported "operations research analyst"[13] as their occupation or profession. The National Science Foundation determined that certain of the above criteria should classify these persons as either "mathematicians" or "engineers." Such an individual, therefore, is classified by criteria 3 or 7 as a "mathematician" if he, depending upon the criterion specified, was either employed as or regarded himself professionally as an "operations research analyst" and met the educational requirement of the specified criterion as it related to mathematicians. Likewise, the individual was classified by criteria 3, 4, or 7 as an "engineer" if, depending on the criterion specified, his occupation and/or profession was "operations research analyst" instead of "engineer," and he met all the other requirements of the specified criterion as these related to engineers.[14] In addition, an individual is classified as an engineer if he met none of the above criteria, but had earned a bachelor's degree in a field of study other than one coincident to a field of science or engineering, was employed as a college president, dean, manager or administrator of research or development, production or operations,[15] and regarded himself professionally as an "operations research analyst."

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[1] Engineers could meet this requirement with a bachelor's degree or higher.

[2] Codes 501-587 and 593 from list A of appendix B.

[3] At the bachelor's level or higher.

[4] Certain coincident fields of study are common to two fields of science or engineering. Therefore, persons meeting criterion 5 with field of study represented by codes 508 or 526 of list A of appendix B were classified exclusively as "biologists;" those with codes 565 or 568, were classified exclusively as "other physical scientists;" and those with code 581, were classified exclusively as "economists."

[5] Codes 457-459 and 476 of list C of appendix B.

[6] In addition to a coincident field of study, engineers could have earned a bachelor's degree or higher in codes 508, 529, 557, 559-561, 563-568 of list A of appendix B.

[7] For all fields except economists, codes 501-587 and 593 of list A of appendix B; for economists, codes 557, 558, 573-587, and 593 of list A of appendix B.

[8] Codes 457-459, and 476 of list C of appendix B.

[9] At the bachelor's level or higher.

[10] Codes 457-459 and 476 of list C of appendix B.

[11] and [12] Codes 458 and 459 of list C of appendix B.

[13] Code 421 of list C of appendix B.

[14] In this instance alone, "Operations research/management science" (code 500 of List A of appendix B) was considered to be a coincident field of study for engineers.

[15] Codes 457-459 and 476 of list C of appendix B.

COINCIDENT AND RELATED MAJOR FIELDS OF STUDY, OCCUPATIONS, AND PROFESSIONS, BY FIELD OF SCIENCE OR ENGINEERING IN 1976

(Codes are from reference lists A and C of appendix B)

Field of science or engineering in 1976	Major field of study		Occupation and profession	
	Coincident	Related	Coincident	Related
Computer specialists	559	501-526, 532-558, 560-568	415-417	401-413, 415-417, 419-438
Engineers	532-550	508, 529, 557, 559-561, 563-568	401-413	457-459, 476
Mathematical specialists:				
Mathematicians	557	532-550, 558-568, 576	419	401-413, 415-417, 419-438
Statisticians	558	518, 532, 535-545, 548, 550, 557, 559-572, 575, 576, 586, 587	420	401-413, 415-417, 419-438
Life scientists:				
Agricultural scientists	501-503, 506, 512, 514-517, 519, 523, 524, 526	504, 505, 507-511, 513, 518, 520-522, 525, 532-568	428	401-413, 415-417, 419-433, 438
Biologists	504, 505, 507-511, 513, 518, 520-522, 525, 526, 554	501-503, 506, 512, 514-517, 519, 523, 524, 532-553, 555-568	429, 431, 433	401-413, 415-417, 419-433, 438
Medical scientists	555, 556	501, 526, 532-550, 557-573	432	401-413, 415-417, 419-438
Physical scientists:				
Chemists	508, 561	501-507, 509-526, 532-560, 562-568	422, 430	401-413, 415-417, 419-433, 438
Physicists and astronomers	560, 564	508, 509, 535-541, 543-546, 550, 557-559, 561-563, 565-568	424	401-413, 415-417, 419-433, 438
Other physical scientists	565, 568	501-526, 532-564, 566, 567	427	401-413, 415-417, 419-433, 438
Environmental scientists:				
Earth scientists	565, 566, 568	501-526, 532-564, 567	423	401-413, 415-417, 419-433, 438
Atmospheric scientists	563	501-526, 532-562, 564-568	425	401-413, 415-417, 419-433, 438
Oceanographers	567	501-526, 532-566, 568	426	401-413, 415-417, 419-433, 438
Psychologists	569-572	509, 551, 552, 556-558, 573, 586	435	401-413, 415-417, 419-438
Social scientists:				
Economists	575, 576, 581	501, 557-559, 574, 577-580, 582, 583, 589, 595	434	434-437
Sociologists and anthropologists	573, 586	569, 572, 574, 577, 579, 587, 593	436	401-413, 415-417, 419-438
Other social scientists	574, 577, 581-584, 587, 593	None	437	434-437

Appendix E. Sample Selection

The 156,116 sample cases for the 1972 Professional, Technical, and Scientific Manpower Survey were separated into two segments. The "target" segment consisted of 150,358 persons who were recorded by the 1970 Census of Population as being in one of 40 groups of scientific, engineering, or related occupations in the 1970 experienced civilian labor force. The "residual" segment consisted of 5,758 persons who were recorded by the 1970 census as having four or more years of college and as being in the 1970 experienced civilian labor force in occupations other than the 40 groups of target occupations.

The sample selection for the National Sample of Scientists and Engineers focused exclusively on the "target" segment. From this "target" segment, 115,557 persons responded in the 1972 survey. Based on criteria established by the survey sponsor, the National Science Foundation, these respondents were classified as "in-scope," that is, in one of the fields of science or engineering in 1972, or as "out-of-scope," that is, not in a field of science or engineering in 1972. The in-scope cases, numbering 50,093 persons, became the sample for the 1974 National Survey of Scientists and Engineers, the 1976 National Survey of Natural and Social Scientists and Engineers, and all subsequent surveys in the National Sample of Scientists and Engineers.

The table in this appendix presents a distribution of the 1972 respondents from the 40 groups of census occupations in the "target" segment, according to their field of science or engineering in 1972.

FIELD OF SCIENCE OR ENGINEERING IN

(Un-

Line number	1970 census occupation[1]	Total	Field of science or engineering in 1972								
			Computer specialists	Engineers	Mathematical specialists			Life scientists			
					Total	Mathematicians	Statisticians	Total	Agricultural scientists	Biological scientists	Medical scientists
1	Total target occupations	115,557	3,391	25,797	2,185	1,604	581	4,891	2,025	2,139	727
2	Operations and computer specialists	14,820	2,809	780	189	163	26	32	9	17	6
3	Computer programmers	4,515	732	101	67	61	6	8	2	5	1
4	Computer systems analysts	4,596	1,453	185	59	50	9	11	4	5	2
5	Computer specialists, n.e.c.	991	215	116	17	16	1	3	1	1	1
6	Operations and systems analysts	4,718	409	378	46	36	10	10	2	6	2
7	Engineers	39,572	202	22,036	89	72	17	67	29	31	7
8	Aeronautical and astronautical engineers	4,715	23	2,985	23	21	2	6	2	3	1
9	Chemical engineers	4,308	14	3,233	5	5	-	9	2	6	1
10	Civil engineers	4,872	7	2,905	4	3	1	8	6	1	1
11	Electrical and electronic engineers	5,429	68	3,301	11	10	1	2	1	-	1
12	Industrial engineers	4,767	23	1,634	23	12	11	14	5	8	1
13	Mechanical engineers	4,761	13	2,824	5	5	-	3	1	2	-
14	Metallurgical and materials engineers	1,231	1	824	-	-	-	7	3	3	1
15	Mining and petroleum engineers	1,193	-	803	-	-	-	3	1	1	1
16	Sales engineers	4,060	14	1,328	1	1	-	3	1	2	-
17	Engineers, n.e.c., and engineering teachers	4,236	39	2,199	17	15	2	12	7	5	-
18	Mathematical specialists	4,579	155	139	1,679	1,218	461	22	4	12	6
19	Actuaries and statisticians	2,052	16	62	405	34	371	13	4	6	3
20	Mathematicians	2,527	139	77	1,274	1,184	90	9	-	6	3
21	Life scientists	6,611	4	71	6	1	5	3,713	1,718	1,683	312
22	Agricultural scientists	1,358	-	33	3	-	3	606	517	86	3
23	Foresters and conservationists[2]	1,369	1	17	-	-	-	1,037	1,018	17	2
24	Biological scientists	3,884	3	21	3	1	2	2,070	183	1,580	307
25	Physical scientists	10,560	37	803	37	34	3	203	40	98	65
26	Chemists	4,883	9	334	7	5	2	138	28	67	43
27	Physicists	2,888	18	323	15	15	-	38	2	15	21
28	Other physical scientists	2,789	10	146	15	14	1	27	10	16	1
29	Social scientists	10,116	67	217	60	27	33	73	21	24	28
30	Economists	4,564	63	170	44	15	29	30	19	7	4
31	Psychologists	3,030	2	5	3	1	2	23	-	6	17
32	Other social scientists	2,522	2	42	13	11	2	20	2	11	7
33	Engineering and science technicians	11,956	23	506	11	8	3	91	34	41	16
34	Agricultural, biological, and chemical technicians, ex. health	2,105	2	34	2	2	-	50	19	23	8
35	Draftsmen	2,434	-	126	-	-	-	2	2	-	-
36	Electrical and electronic engineering technicians	2,025	8	79	2	1	1	2	-	1	1
37	Industrial and mechanical engineering technicians, and numerical control tool programmers	1,327	8	99	5	3	2	-	-	-	-
38	Surveyors	2,010	-	73	1	1	-	10	9	1	-
39	Mathematical technicians and engineering and science technicians, n.e.c.	2,055	5	95	1	1	-	27	4	16	7
40	Personnel and labor relations workers	2,506	5	50	7	6	1	14	7	4	3
41	Health specialties teachers	1,055	-	5	-	-	-	220	5	22	193
42	Trade, industrial, and technical teachers	122	1	1	-	-	-	2	-	-	2
43	Miscellaneous teachers	659	1	18	3	[illegible]	-	6	1	2	3
44	Teachers, subject not specified	2,018	7	125	33	27	6	123	24	78	21
45	Technicians, n.e.c.	1,234	3	17	1	1	-	5	2	2	1
46	Research workers, not specified	1,984	14	233	33	18	15	178	55	80	43
47	School administrators, college[3]	1,138	4	28	4	3	1	36	10	20	6
48	Managers and administrators, n.e.c.[3]	6,627	59	768	33	23	10	106	66	25	15

- Represents zero. n.e.c. Not elsewhere classified.

[1]For detailed information on the composition of the census occupational categories, see U.S. Bureau of the Census, Characteristics page 120] for categories with line numbers 33-48, and appendix E for categories with line numbers 2-32.

[2]Excludes persons with fewer than four years of college.

1972, BY 1970 CENSUS OCCUPATION

weighted)

Field of science or engineering in 1972													Not in a field of science or engineering in 1972	Line number
Physical scientists				Environmental scientists				Psychologists	Social scientists					
Total	Chemists	Physicists and astronomers	Other physical scientists	Total	Atmospheric scientists	Earth scientists	Oceanographers		Total	Economists	Sociologists and anthropologists	Other social scientists		
6,248	3,644	2,128	476	2,095	150	1,898	47	2,488	2,998	1,216	696	1,086	64,464	1
61	18	35	8	19	2	17	-	22	106	50	12	44	10,802	2
15	3	9	3	6	1	5	-	9	5	4	-	1	3,572	3
18	4	11	3	5	1	4	-	6	34	18	4	12	2,825	4
7	1	6	-	5	-	5	-	-	4	1	1	2	624	5
21	10	9	2	3	-	3	-	7	63	27	7	29	3,781	6
410	270	126	14	71	6	65	-	21	69	31	8	30	16,607	7
46	12	31	3	4	1	3	-	3	10	3	-	7	1,615	8
192	173	16	3	4	2	2	-	2	3	2	1	-	846	9
2	2	-	-	14	-	14	-	1	6	2	-	4	1,925	10
36	7	27	2	2	1	1	-	-	4	2	-	2	2,005	11
37	27	8	2	4	2	2	-	7	27	15	2	10	2,998	12
6	-	6	-	1	-	1	-	1	3	1	1	1	1,905	13
18	14	4	-	1	-	1	-	1	1	-	-	1	378	14
6	3	3	-	33	-	33	-	-	1	-	1	-	347	15
12	7	4	1	2	-	2	-	2	5	2	1	2	2,693	16
55	25	27	3	6	-	6	-	4	9	4	2	3	1,895	17
50	21	25	4	8	-	8	-	25	75	36	10	29	2,426	18
14	9	3	2	1	-	1	-	15	56	27	7	22	1,470	19
36	12	22	2	7	-	7	-	10	19	9	3	7	956	20
291	91	7	193	53	5	44	4	48	46	19	10	17	2,379	21
43	7	-	36	12	2	10	-	-	25	16	2	7	636	22
14	2	-	12	9	-	8	1	-	3	1	-	2	288	23
234	82	7	145	32	3	26	3	48	18	2	8	8	1,455	24
4,634	2,707	1,753	174	1,815	123	1,660	32	8	25	5	8	12	2,998	25
2,692	2,641	13	38	13	1	11	1	2	8	2	4	2	1,680	26
1,822	37	1,709	76	27	2	23	2	6	8	2	4	2	631	27
120	29	31	1, 60	1,775	120	1,626	29	-	9	1	-	8	687	28
54	29	9	16	10	-	10	-	2,108	2,111	924	541	646	5,416	29
23	18	3	2	3	-	3	-	10	992	917	5	70	3,229	30
7	2	-	5	-	-	-	-	2,082	117	-	17	100	791	31
24	9	6	9	7	-	7	-	16	1,002	7	519	476	1,396	32
211	188	13	10	15	1	14	-	5	11	2	5	4	11,083	33
158	150	2	6	3	-	3	-	-	2	-	1	1	1,854	34
2	-	-	2	3	-	3	-	2	-	-	-	-	2,299	35
5	4	1	-	1	1	-	-	-	2	1	1	-	1,926	36
6	5	1	-	-	-	-	-	-	2	1	-	1	1,207	37
1	1	-	-	-	-	-	-	-	2	-	1	1	1,923	38
39	28	9	2	8	-	8	-	3	3	-	2	1	1,874	39
12	8	3	1	1	-	1	-	20	52	9	4	40	2,344	40
19	9	3	7	1	-	1	-	28	11	1	2	8	771	41
-	-	-	-	-	-	-	-	1	1	-	-	1	116	42
8	2	-	6	13	2	11	-	1	49	1	2	46	560	43
98	47	42	9	25	-	23	2	61	127	32	46	49	1,419	44
8	6	2	-	2	1	1	-	1	3	-	1	2	1,194	45
259	158	77	24	37	7	21	9	68	111	27	25	59	1,051	46
16	9	4	3	5	-	5	-	35	53	17	6	30	957	47
117	81	29	7	20	3	17	-	36	147	62	16	69	5,341	48

of Persons in Engineering and Scientific Occupations: 1972, Technical Paper No. 33, 1974, appendix A (especially list A,

Appendix F. Analysis of Response

The table in this appendix presents response rates of various components of the sample for the 1976 National Survey of Natural and Social Scientists and Engineers. The characteristics presented here are based on the 1970 census or on the 1976 survey. Since the percentages in the table are based on a complete count of the sample cases, no reference to the standard error tables is necessary.

Men were more likely than women to respond in the 1976 survey. About 88 percent of the men in the survey panel responded, compared with about 85 percent of women.

Response rates increased steadily by age from a rate of 75 percent for panel members under 25 years old to 89 percent for the age group 55 to 59 years old. After peaking for the 55 to 59 years of age group, however, the response rate made slight declines in the groups above 60, dropping to 86 percent for persons 65 years and older. Since nonrespondents include deceased persons, this slight decrease in rates is expected. Overall, except for the two youngest age groups, over 80 percent of each age category responded in the 1976 survey; even the youngest groups, however, had rates of 75 percent and above.

There were only slight differences in response rates for 1976 among the various fields of science or engineering in 1974. The highest response rate, 94 percent, was that for physical scientists. The lowest rate was approximately 91 percent for computer specialists.

PERCENT DISTRIBUTION—ANALYSIS OF RESPONSE IN THE 1976 NATIONAL SURVEY OF NATURAL AND SOCIAL SCIENTISTS AND ENGINEERS, BY FIELD OF SCIENCE OR ENGINEERING IN 1974, AGE IN 1976, AND SEX

Sex, age in 1976, and field of science or engineering in 1974	Response in 1976			
	Total		Respondents	Nonrespondents
	Number	Percent		
Total	50,093	100.0	85.1	14.9
SEX				
Male	46,877	100.0	88.3	11.7
Female	3,216	100.0	85.4	14.6
AGE IN 1976				
Under 25 years	8	100.0	75.0	25.0
25 to 29 years	2,278	100.0	77.8	22.2
30 to 34 years	8,094	100.0	81.3	18.7
35 to 39 years	8,743	100.0	83.0	17.0
40 to 44 years	7,883	100.0	85.3	14.7
45 to 49 years	7,365	100.0	87.4	12.6
50 to 54 years	6,515	100.0	88.6	11.4
55 to 59 years	4,214	100.0	89.1	10.9
60 to 64 years	2,638	100.0	88.6	11.4
65 to 69 years	1,545	100.0	87.7	12.3
70 years and over	810	100.0	81.6	18.4
FIELD OF SCIENCE OR ENGINEERING IN 1974				
Respondents in 1974	44,158	100.0	92.5	7.5
Total in-scope in 1974	39,473	100.0	92.8	7.2
Computer specialists	2,291	100.0	91.3	8.7
Engineers	20,814	100.0	92.5	7.5
Mathematical specialists	1,612	100.0	92.7	7.3
Life scientists	4,026	100.0	93.8	6.2
Physical scientists	4,824	100.0	94.4	5.6
Environmental scientists	1,867	100.0	92.8	7.2
Psychologists	1,989	100.0	91.8	8.2
Social scientists	2,050	100.0	92.1	7.9
Total out-of-scope in 1974	4,685	100.0	90.5	9.5
Nonrespondents in 1974	5,935	100.0	30.0	70.0

Appendix G. Highest Degree Held in 1976 Revisions

After the data in tables 1-5 of this report were tabulated, an error was found in the computer program that determined the highest degree held (HDH) in 1976 of each survey respondent. Because of the role of the 1976 HDH in establishing a respondent's field of science or engineering in 1976, the error could have introduced inaccuracies into the data on field of science or engineering in 1976, on highest degree held in 1976, and on other characteristics related to these two items. To measure the effects of the error, selected tabulations of the 1976 survey response were recalculated to correct for the error. The table in this appendix compares the data on field of science or engineering in 1976 and highest degree held in 1976 presented in this report (in the table these are referred to as "published data") with the recalculated or "revised" data on these two characteristics. The differences between the published and the revised data are negligible and did not justify the recalculation and representation of the data in tables 1-5 of this report.

FIELD OF SCIENCE OR ENGINEERING IN 1976, BY HIGHEST DEGREE HELD IN 1976, BY PUBLISHED AND REVISED DATA, BY NUMBER AND PERCENT CHANGE

Field of science or engineering in 1976	Highest degree held in 1976							
	Total	Doctorate	Prof./medical	Master's	Bachelor's	Associate	Other	No degree
Total, fields of science or engineering								
Published data (a)	1,027,906	187,114	3,085	237,719	572,654	9,910	101	17,323
Revised data (b)	1,028,869	184,749	2,909	234,373	579,054	9,873	101	17,810
Change (b-a)	+963	-2,365	-176	-3,346	+6,400	-37	-	+487
Percent change	+0.1	-1.3	-5.7	-1.4	+1.1	-0.4	-	+2.8
Computer specialists								
Published	50,691	3,565	114	15,507	31,505	-	-	-
Revised	50,290	3,074	97	14,868	32,251	-	-	-
Change	-401	-491	-17	-639	+746	-	-	-
Percent change	-0.8	-13.8	-14.9	-4.1	+2.4	-	-	-
Engineers								
Published	658,549	34,701	1,097	146,721	448,697	9,910	101	17,323
Revised	659,666	33,784	938	143,827	453,334	9,873	101	17,810
Change	+1,117	-917	-159	-2,894	+4,637	-37	-	+487
Percent change	+0.2	-2.6	-14.5	-2.0	+1.0	-0.4	-	+2.8
Mathematical specialists								
Published	24,831	10,118	134	7,470	7,809	-	-	-
Revised	24,983	9,950	134	7,674	7,224	-	-	-
Change	+152	-168	-	+204	+115	-	-	-
Percent change	+0.6	-1.7	-	+2.7	+1.6	-	-	-
Mathematicians								
Published	17,873	7,804	76	5,392	4,600	-	-	-
Revised	18,024	7,637	76	5,612	4,699	-	-	-
Change	+151	-167	-	+220	+99	-	-	-
Percent change	+0.8	-2.1	-	+4.1	+2.2	-	-	-
Statisticians								
Published	6,958	2,313	58	2,078	2,509	-	-	-
Revised	6,958	2,313	58	2,062	2,525	-	-	-
Change	-	-	-	-16	+16	-	-	-
Percent change	-	-	-	-0.8	+0.6	-	-	-
Life scientists								
Published	70,027	31,935	1,227	15,568	21,297	-	-	-
Revised	70,092	31,869	1,227	15,505	21,491	-	-	-
Change	+65	-66	-	-64	+194	-	-	-
Percent change	+0.1	-0.2	-	-0.4	+0.9	-	-	-
Agricultural scientists								
Published	26,315	6,787	36	5,272	14,220	-	-	-
Revised	26,315	6,787	36	5,209	14,284	-	-	-
Change	-	-	-	-63	+64	-	-	-
Percent change	-	-	-	-1.2	+0.4	-	-	-
Biologists								
Published	33,975	20,225	143	8,242	5,365	-	-	-
Revised	34,039	20,158	143	8,289	5,448	-	-	-
Change	+64	-67	-	+47	+83	-	-	-
Percent change	+0.2	-0.3	-	+0.6	+1.5	-	-	-
Medical scientists								
Published	9,738	4,924	1,044	2,055	1,711	-	-	-
Revised	9,738	4,924	1,044	2,007	1,759	-	-	-
Change	-	-	-	-48	+48	-	-	-
Percent change	-	-	-	-2.3	+2.8	-	-	-
Physical scientists								
Published	117,043	55,336	199	21,611	39,897	-	-	-
Revised	117,091	55,102	199	21,398	40,393	-	-	-
Change	+48	-234	-	-213	+496	-	-	-
Percent change	(Z)	-0.4	-	-1.0	+1.2	-	-	-
Chemists								
Published	83,788	35,655	187	14,916	33,029	-	-	-
Revised	83,812	35,486	187	14,763	33,376	-	-	-
Change	+24	-169	-	-153	+347	-	-	-
Percent change	(Z)	-0.5	-	-1.0	+1.1	-	-	-

See footnotes at end of table.

FIELD OF SCIENCE OR ENGINEERING IN 1976, BY HIGHEST DEGREE HELD IN 1976, BY PUBLISHED AND REVISED DATA, BY NUMBER AND PERCENT CHANGE—Continued

Field of science or engineering in 1976	Highest degree held in 1976							
	Total	Doctorate	Prof./medical	Master's	Bachelor's	Associate	Other	No degree
Physicists and astronomers								
Published	27,502	17,649	17	5,362	4,477	-	-	-
Revised	27,525	17,584	12	5,302	4,626	-	-	-
Change	+23	-65	-	-60	+149	-	-	-
Percent change	+0.1	-0.4	-	-1.1	+3.3	-	-	-
Other physical scientists								
Published	5,754	2,031	-	1,332	2,390	-	-	-
Revised	5,754	2,031	-	1,332	2,390	-	-	-
Change	-	-	-	-	-	-	-	-
Percent change	-	-	-	-	-	-	-	-
Environmental scientists								
Published	26,997	7,799	36	7,632	11,529	-	-	-
Revised	26,980	7,740	36	7,537	11,666	-	-	-
Change	-17	-59	-	-95	+137	-	-	-
Percent change	-0.1	-0.8	-	-1.2	+1.2	-	-	-
Earth scientists								
Published	22,370	5,826	24	6,301	10,219	-	-	-
Revised	22,370	5,810	24	6,230	10,306	-	-	-
Change	-	-16	-	-71	+87	-	-	-
Percent change	-	-0.3	-	-1.1	+0.9	-	-	-
Atmospheric scientists								
Published	3,223	1,017	12	989	1,204	-	-	-
Revised	3,223	1,005	12	964	1,241	-	-	-
Change	-	-12	-	-25	+37	-	-	-
Percent change	-	-1.2	-	-2.5	+3.1	-	-	-
Oceanographers								
Published	1,404	956	-	342	106	-	-	-
Revised	1,387	925	-	343	119	-	-	-
Change	-17	-31	-	+1	+13	-	-	-
Percent change	-1.2	-3.2	-	+0.3	+12.3	-	-	-
Psychologists								
Published	34,186	21,244	79	10,098	2,765	-	-	-
Revised	34,203	21,050	79	10,267	2,808	-	-	-
Change	+17	-194	-	+169	+43	-	-	-
Percent change	(Z)	-0.9	-	+1.7	+1.6	-	-	-
Social scientists								
Published	45,582	22,417	199	13,111	9,855	-	-	-
Revised	45,565	22,181	199	13,297	9,887	-	-	-
Change	-17	-236	-	+186	+32	-	-	-
Percent change	(Z)	-1.1	-	+1.4	+0.3	-	-	-
Economists								
Published	17,726	8,798	135	4,322	4,471	-	-	-
Revised	17,709	8,698	135	4,389	4,488	-	-	-
Change	-17	-100	-	+67	+17	-	-	-
Percent change	-0.1	-1.1	-	+1.6	+0.4	-	-	-
Sociologists and anthropologists								
Published	10,309	6,845	14	2,031	1,420	-	-	-
Revised	10,309	6,790	14	2,085	1,420	-	-	-
Change	-	-55	-	+54	-	-	-	-
Percent change	-	-0.8	-	+2.7	-	-	-	-
Other social scientists								
Published	17,546	6,774	31	6,758	3,964	-	-	-
Revised	17,546	6,693	51	6,823	3,980	-	-	-
Change	-	-81	-	+65	+16	-	-	-
Percent change	-	-1.2	-	+1.0	+0.4	-	-	-
Not in a field of science or engineering in 1976								
Published	157,559	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
Revised	156,597	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
Change	-962	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
Percent change	-0.6	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)

- No cases reported. Z Less than 0.05 percent. NA Not available.